ZONARE

z.one*pro* Ultrasound System

(Including Special Procedures interface option)

Instructions for Use

ZONARE
A Mindray Company

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The ZS3 Ultrasound Platform and products derived there from (for example, but not limited to, the ZS3 and the z.one*pro* with and without the SP UI option) is covered by one or more of the following patents: 6,251,073; 6,569,102; 6,618,206; 6,663,567; 6,685,645; 6,733,455; 6,773,399; 6,866,631; 6,866,632; 6,896,658; 6,936,008; 6,980,419; 6,997,876; 7,022,075; 7,087,020; 7,226,416; 7,238,157; 7,352,570; 7,361,145; 7,510,529; 7,627,386; 7,382,309; 7,699,781; 8,002,705; 8,226,561; D461,814; D462,446; D467,002; D469,539; D469,877

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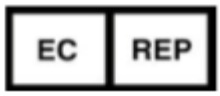

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CAUTION: United States Federal law restricts this device to sale by or on the order of a licensed healthcare practitioner (USA).

Part Number Q00350-00 Rev D
October 2014

CE
0086

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1. Introduction

United States Federal Law restricts this device to sale by or on the order of a licensed healthcare practitioner, licensed by the law of the jurisdiction in which they practice, to use or order the use of this device. Only qualified personnel should perform ultrasound scanning of human subjects for medical diagnostics.

ZONARE ultrasound systems meet the acoustic output emission guidelines established by the U.S. Food and Drug Administration (FDA). Acoustic output quantities have been measured, and are displayed, in accordance with the standards listed under *Guidance Documents*.

Indications for Use

This device is intended for use by a qualified physician for ultrasound evaluation of Ophthalmic; Fetal/obstetric, gynecological; Abdominal (renal, GYN/Pelvic; Intra-operative (abdominal, thoracic, and vascular), Intra-operative neurological; Pediatric; Small organ (thyroid, breast, testes, etc), Adult & Neonatal Cephalic; Trans-rectal, Trans-vaginal, Trans-cranial, Trans-esophageal (non-cardiac and cardiac); Musculoskeletal (conventional & superficial); 3D/4D; Cardiac – Adult/ Pediatric/ Fetal; Echo, Intra-Cardiac; Pelvic; Peripheral vascular; harmonic tissue and contrast imaging and Tissue elasticity.

Device Description

The ZONARE ZS3 Ultrasound Platform and products derived there from (for example, but not limited to, the ZS3 and the z.one$_{pro}$ with and without the SP UI option) is used for ultrasound evaluation of the following applications: Fetal, Abdominal, Intraoperative, Pediatric, Ophthalmic, Small Organ/Parts (breast/testes, thyroid, etc), Transvaginal, Transrectal, Transcranial, OB/GYN, Cardiac, Pelvic, Neonatal/Adult Cephalic, Vascular, Tissue Elasticity, Contrast Imaging, Musculoskeletal, Superficial Musculoskeletal and Peripheral Vascular applications. Users include ultrasound imaging technicians (sonographers) and physicians. ZONARE Ultrasound Imaging Systems may be used in a hospital (e.g. imaging laboratory, emergency room, patient bedside, operating room), medical clinic, physician's office or a mobile imaging center.

The ZS3 Ultrasound Platform consists of two major components: 1) Cart; and, 2) Transducer(s). The Cart contains the software driven imaging electronics and user interfaces (keyboard, monitor, handles, etc.). It houses the microprocessor, memory, amplifiers and power supplies

for the microprocessor. It sends electrical currents to and receives electrical pulses from the compatible ZONARE transducers. The Cart performs the calculations involved in processing the data to produce the displayed ultrasound images. Cart options include, but are not limited to, echocardiography (which includes continuous wave (CW), physiologic signals (ECG and respiration) and the cardiac calculation package), advanced vascular (which includes CW) and the streamlined Special Procedures user interface.

Note (*): The availability of options may be limited based on country or region of use.

System Features/Transducers & Options Matrix

Features	**ZS3**	**z.one*pro***	**z.one*pro* SP ***
2D/B-Mode	**X**	**X**	**X**
M-Mode	**X**	**X**	**X**
Color Doppler	**X**	**X**	**X**
Power Doppler	**X**	**X**	**X**
Continuous Wave (CW) *	**X**	**X**	
Physio Controls *	**X**	**X**	
Contrast *	**X**	**X**	
Elastography	**X**		
3D/4D	**X**		

Transducers	ZS3	z.one*pro*	z.one*pro* SP *
A2CW *	X	X	
A5CW *	X	X	
C4-1	X	X	X
C6-2	X	X	X
C8-3 3D	X		
C9-3	X	X	X
C9-3sp	X		
C10-3	X	X	X
L14-5w	X	X	X
L14-5sp	X	X	X
L10-5	X	X	X
L20-5	X		
L8-3	X	X	X
E9-3 3D	X		
E9-3	X	X	X
E9-4	X	X	X
P4-1c	X	X	X
P8-3TEE	X	X	X
P9-3ic	X		

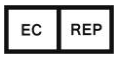
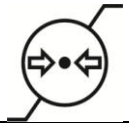
Note (*): The availability of options may be limited based on country or region of use.

Available with the system are one or more ZONARE Curvilinear, Endocavity, Linear, or Phased array transducers allowing for many clinical applications. Accessories include, but are not limited to the ZONARE ZPAK Battery and off-the-shelf components: bar code reader, foot pedal, printers, biopsy guides, ECG cables and a wireless Ethernet interface. Case studies can be stored to USB memory stick, DVD, and other industry standard archiving devices.

Key to Symbols

The following symbols may be used in this document or elsewhere in product labeling.

Symbol	Description
	Information that may relate to safety of the patient, the operator, or the equipment
	A type BF patient-applied part (B= body, F= floating applied part)
	A type CF patient-applied part (C= cardiac, F= floating applied part)
	Alternating current (AC)
	Direct current (DC)
	Date of manufacture
	Manufacturer
	Caution: ESD sensitive
	Recyclable material
V	Voltage
Hz	Cycles per second
	Waste Electrical & Electronic Equipment Standard Applies to EU Member States only: this system should not be treated as household waste. ZONARE meets the WEEE Standard. For more information on returning or recycling this system, please contact ZONARE Inc. or the distributor from whom you purchased the system.
	Consult the Instructions for Use
	ZONARE serial number

Symbol	Description
	Authorized representative in the European Community
	Catalog number
	Shipping & Storage: Fragile
	Shipping & Storage: Keep dry
	Shipping & Storage: Temperature limits
	Shipping & Storage: This side UP
	Shipping& Storage: Do not stack above this container
	Shipping & Storage: Humidity limits
	Shipping & Storage: Pressure limits
Rx Only	Federal law restricts this device to sale by or on the order of a licensed healthcare practitioner (USA).

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2. Getting Started

Please read this document carefully before using the z.one$_{pro}$ ultrasound system.

Overview of Console, System and Features

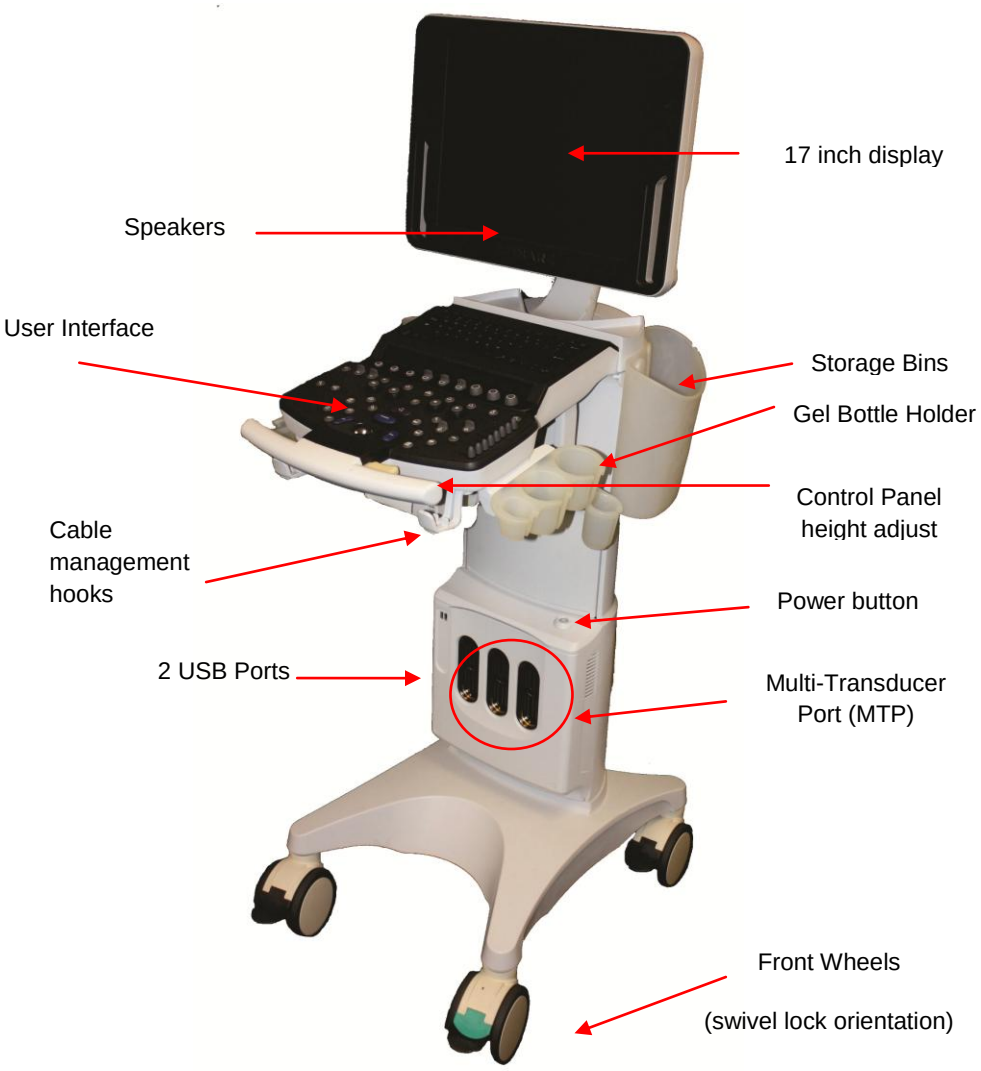


Figure 2.1: z.one$_{pro}$ System Components

LCD Display

The z.one*pro* 17-inch LCD Display shows the ultrasound image, plus patient and imaging information in designated areas of the screen.

- Overall screen display = 1280 x 1024 pixels
- Imaging area = 800 x 600 pixels

Full Screen Image Display

The z.one*pro* allows you to enlarge the imaging portion of the monitor to use the full (1280 x 1024) display. You can easily go from the imaging portion display of (800 x 600) to (1280 x 1024) with the push of a **Function Key**.

Video Adjustment

An on-screen set-up menu provide access to all video adjustment options.

Control Panel

The z.one*pro* has a full –featured control panel/ user interface (see Quick Start Guide below).

Multi-Transducer Port

The multi-transducer port (MTP) allows up to three transducers simultaneously connect to the system. You can easily activate any of the transducers connected to the cart.

Transducer Holders

The safe storage for ZONARE transducers is provided on both sides of the z.one*pro* system (Figure 2.1).

Internal Cart Hard Drive (Cart HD)

All current exam images are initially captured and archived to the hard drive. This data can be automatically saved to the internal hard drive (cart HD), transferred using the Export function, or retrieved from the drive using the Import function. The minimum size of the internal hard drive is 120 GB.

NOTE: The internal hard drive is not intended for use as a long-term archive. Back up exam and other data on the hard drive regularly.

CD/DVD Burner

The built-in CD/DVD burner allows you to import/ export exams from the system. Note: Before deleting any exam data from the cart hard drive, always verify that data was successfully transferred to the CD/DVD by viewing it on an external reader/ player.

When exams are exported onto the CD/DVD, a DICOM viewer program (Showcase®) and its user's manual are simultaneously exported onto the CD/DVD, allowing the exams to be opened, annotated, and saved in several formats on any commercial PC.

Barcode Reader (option)

Patient accession numbers or patient ID numbers can be entered via a selection of ZONARE-approved barcode readers that can connect to a system USB port.

Foot Pedal (option)

A remote 2-pedal footswitch is optionally available for connection to the system via any available USB port. The left pedal activates **Freeze** and the right pedal activates **Store**.

Backup ZPak Battery (option)

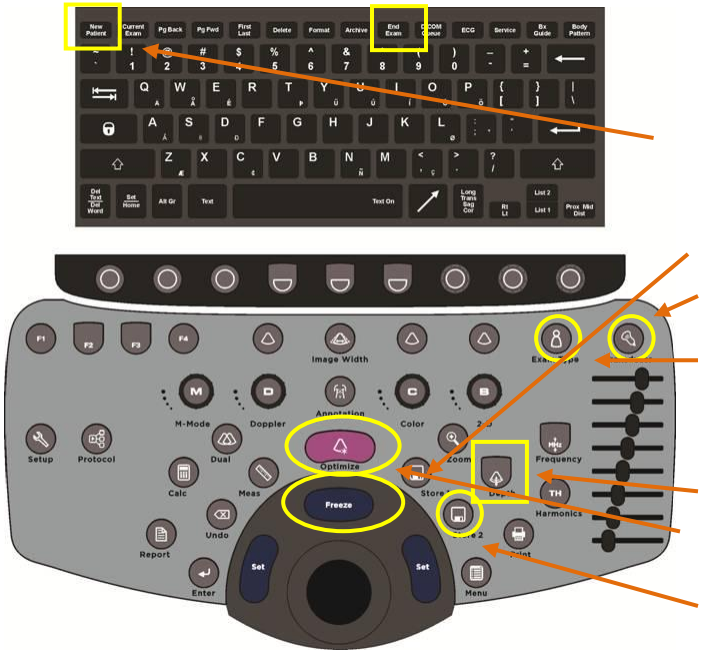
A backup battery may be ordered that can power the system for up to 1 ½ hours of normal use in the absence of a connection to an active AC power outlet, depending on usage. The battery allows the system to be operated in normal use without connection to an active AC Power outlet.

The backup is mounted at the base of the system and is automatically kept charged by the DC power suppliers within the system. The battery is charged (as needed) whenever the z.one$_{pro}$ system is connected to active AC power.

Printers and Other Peripherals

ZONARE offers a number of optional medical-grade (IEC 60601 compliant) peripherals. Detailed instructions, for proper peripheral use, are covered in the manufacturer's instructions provided at the time of shipment.

Quick Start Guide – Full Featured User Interface



1. Connect transducer(s) (cable point up).
2. Press **On** button (above-right of transducer connectors).
3. Press **New Patient**
4. Enter patient information and select **Exam/Pres** on this screen.
5. Press **Freeze** to begin imaging.
6. Press **Transducer** to display softkeys. Press softkey for desired transducer.
7. Press **Exam Type,** then select softkey for desired exam/preset.
8. Begin scanning and acquire desired image.
9. Adjust **Depth**.
10. Press **Optimize** to provide best image automatically.
11. Press **Freeze** to stop live scanning.
12. Use **Store/Print** to capture images/clips.

Figure 2.2: z.one*pro* Control Panel

Powering On/Off

1. Press and release the **Power** button to turn the system on. The system takes approximately 30 seconds to complete the normal power on sequence.
2. Check the z.one*pro* display to ensure the ZONARE startup screen is shown. When initialization is complete, the system is ready for imaging.
3. To Power Off press and release the **Power** button. NOTE: When servicing the z.one*pro* system, always be sure to turn the circuit breaker to the Off position.

Basic Measurements (Meas Button)

1. Press **Meas** while image is frozen.
2. Select desired measurement on menu & press **Set**.
3. Position first caliper with **Trackball** & press **Set**.
4. Position second caliper with **Trackball** & press **Set**.

Basic Calculations (Calc Button)

1. Press **Calc** while image is frozen.
2. Select desired calc on menu & press **Set**.

3. Position caliper with **Trackball** & press **Set**.
4. Position additional caliper(s) with **Trackball** & press **Set**. Calc will display on screen.
5. Press **Enter** or **Store** to store the result.
6. Press **Report** to display calcs you've recorded.

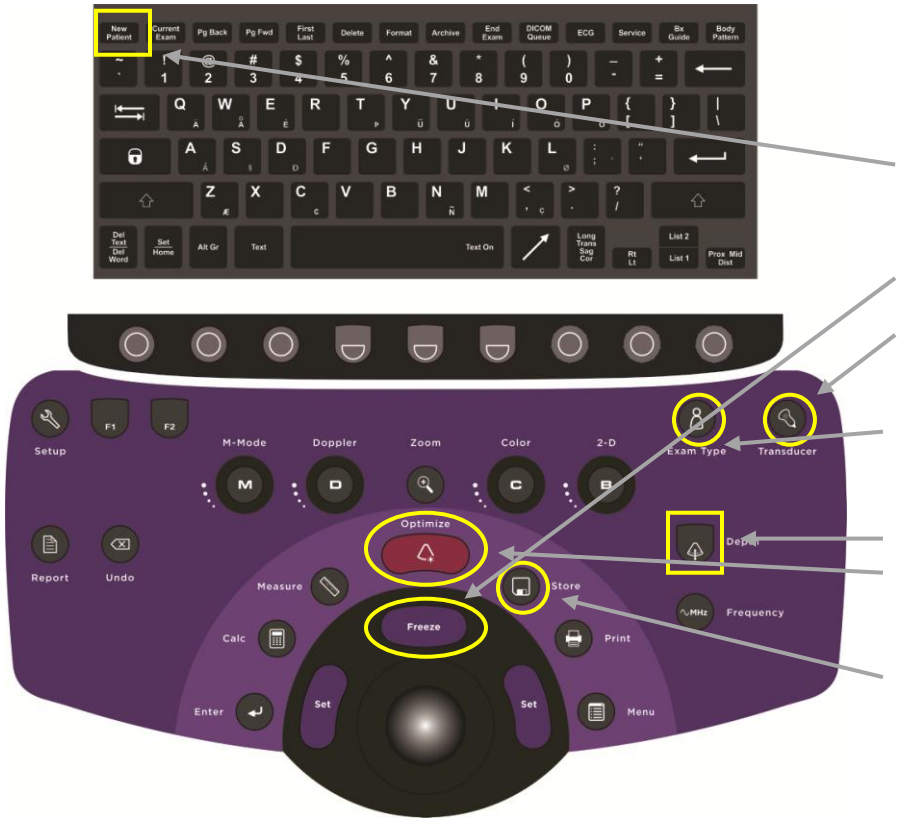
Export Exams to USB or CD/DVD

1. Press **Archive** (back row of QWERTY keyboard).
2. Point to **Export.** This will open Archive Exam Export.
3. Point to **Destination**. Then click **Export** at bottom of screen.
4. On next screen, click **Options**. **Archive Exam Export Options** screen displays:
5. Select **Non-DICOM**. Select **JPEG** or **TIFF**.
6. Click **Apply**.
7. Click **Export** on next screen. Verify export (**Yes/No**) at prompt.
   If **Yes**, exam exports to USB/CD/DVD but is not deleted from hard drive.

Review Images in Current Exam

1. Press **Current Exam** (back row of QWERTY keyboard).
2. All stored images for exam appear.
3. To view an image in large format, point with cursor and press **Set** key.
4. Press **Current Exam** to exit review & return to live imaging.

Quick Start Guide – Special Procedures User Interface



1. Connect transducer(s) with cable pointing up
2. Press **ON** button (above-right of transducer connectors)
3. Press **New Patient**
4. Enter patient information and select **Exam/Preset** on screen
5. Press **Freeze** to begin imaging
6. Press **Transducer** key to display softkeys. Press softkey for desired transducer
7. Press **Exam Type**, then select softkey for desired exam / preset
8. Begin scanning and acquire desired image.
9. Adjust **Depth** toggle key
10. Press **Optimize** button to provide best image automatically
11. Press **Freeze** button to stop live scanning
12. Use **Store** or **Print** buttons to capture images or clips
13. Press **End Exam** to close study

Figure 2.3: z.one*pro* SP Control Panel

Powering On/Off

1. Press and release the **Power** button to turn the system on. The system takes approximately 30 seconds to complete the normal power on sequence.
2. Check the z.one$_{pro}$ display to ensure the ZONARE startup screen is shown. When initialization is complete, the system is ready for imaging.
3. To Power Off press and release the **Power** button. NOTE: When servicing the z.one$_{pro}$ system, always be sure to turn the circuit breaker to the Off position.

Basic Measurements (Meas Button)

Depth (cm)

1. During *live* 2D scanning, press **Measure**.
2. Position caliper with **Trackball**.
3. Depth will display on screen.

Distance (cm)

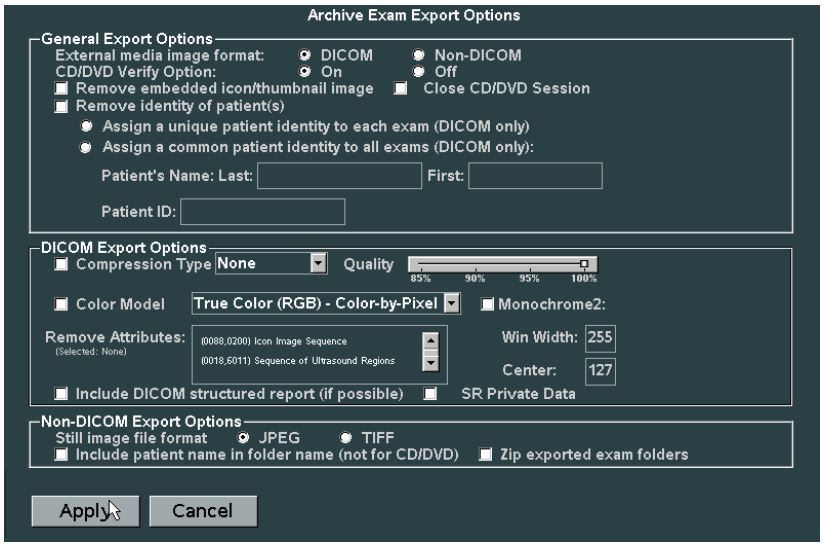
1. Press **Measure** while 2D or M-Mode image is *frozen*.
2. Select **Distance** on menu & press **Set**.
3. Position first caliper with **Trackball** & press **Set**.
4. Position second caliper with **Trackball** & press **Set**.
5. Distance between calipers will display on screen.

Basic Calculations (Calc Button)

1. Press **Calc** while image is frozen.
2. Select desired calc on menu & press **Set**.
3. Position caliper with **Trackball** & press **Set**.
4. Position additional caliper(s) with **Trackball** & press **Set**. Calc will display on screen.
5. Press **Enter** or **Store** to store the result.
6. Press **Report** to display calcs you've recorded.

Export Exams to USB or CD/DVD

1. Press **Archive** (back row of QWERTY keyboard).
2. Point to **Export.** This will open Archive Exam Export.
3. Point to **Destination**. Then click **Export** at bottom of screen.
4. On next screen, click **Options**. **Archive Exam Export Options** screen displays:



5. Select **Non-DICOM**. Select **JPEG** or **TIFF**.
6. Click **Apply**.
7. Click **Export** on next screen. Verify export (**Yes/No**) at prompt.
   If **Yes**, exam exports to USB/CD/DVD but is not deleted from hard drive.

Review Images in Current Exam

1. Press **Current Exam** (back row of QWERTY keyboard).
3. All stored images for exam appear.
3. To view an image in large format, point with cursor and press **Set** key.
4. Press **Current Exam** to exit review & return to live imaging.

Restart Closed Exam

1. Press **New Patient** (QWERTY keyboard).
2. Click **Restart** (bottom of screen).
3. Point cursor to desired exam and press **Set** key.
4. Click **Select Exam** (bottom of screen). Next, press **Exit** on patient form.
5. You can now resume exam & add images to the study.
6. Press **End Exam** (QWERTY keyboard) to end exam.

Delete Exams from Archive

NOTE: System has limited memory; delete/transfer exams weekly.

1. Press **Archive** (QWERTY keyboard).
2. Point cursor to desired exam & press **Set** key.

Click Delete (bottom of screen). Select Yes to confirm. Exam is deleted from hard drive.

Moving the z.one$_{pro}$ system

When Moving

1. Lower the adjustable height to MINIMUM using the height adjustment release lever.
2. Fold the monitor display down to a horizontal position and lock in place. The monitor arm will lock into a non-rotating position when the two parts of the articulating arm are in-line with each other AND centered with the system.
3. Ensure that the transducer cables are wrapped over the cable hooks.
4. Place the front wheels in the non-swivel position.
5. Ensure that all wheels are unlocked, and push the cart from the front when transferring from location to location.
6. When moving the cart over obstacles, always pull from the front.

When Scanning

1. Before scanning a patient, apply the brake by fully depressing the brake pedal on each front wheel.
2. To disengage brakes, flip up the pedals.

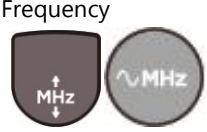
Height adjustment

The height of the user interface console can be adjusted by squeezing the release lever located inside the right-front handle. Refer to Figure 2.4: Height Adjustment

Figure 2.4: Height Adjustment

3. Imaging (Mode Controls)

2D/B-Mode Controls

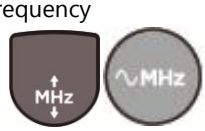
Control	Description/Use
* Indicates this control is also available in retrospective processing.	
Gain*	Adjust **Gain** by rotating the outer ring of the **B-Mode** (2D) button.
Depth	Press the **Depth** button UP to decrease depth; press DOWN to increase depth.
Harmonics	Press the **TH** button to toggle on/off tissue harmonic imaging. ***Hard key not available on the Special Procedures interface.***
Frequency 	Press the **Frequency** button UP to increase transmit frequency; press DOWN to decrease transmit frequency. ***On the Special Procedures interface, repeated pressing of the push button cycles through the frequency options.*** **NOTE:** Press **Frequency** up or down when doing compound imaging to cycle through Frequency and Compounding choices.
Zoom	Acoustic Zoom (live image). The first press displays a Region Of Interest (ROI) that can be positioned/size over the anatomy of interest. The second press zooms the ROI, reconfiguring the scanner to provide enhanced imaging in that region. Display Zoom (Frozen/Cine image) The first press zooms the image. The Depth key changes the magnification. The Trackball pans the image.

Control	Description/Use
Menu	While B-mode is active the **Menu** button invokes a pop-up menu showing many secondary optimization controls including: • **Maps*** • **Tint*** • **Dynamic Range*** • **L/R invert*** • **U/D invert*** • **Persistence*** • **Edge*** • **Acoustic Output**
Optimize*	**Overall/DGC gain:** Press the **Optimize** button to automatically balance the overall/DGC gain. The B-Mode image adjusts the brightness of the image to the default target gain value. **Sound speed correction:** Press and hold down **Optimize** to automatically compensate for the sound speed in tissue. The B-Mode image pauses momentarily, then adjusts for the detected sound speed. **To exit optimize mode:** Double-click **Optimize** to turn optimize functions off.
B Steer	**NOTE:** For linear array transducers only n Turn **B Steer** softkey to select **B Steer** (0°); **B Steer 10** (10° right); or **B Steer –10** (10° left). **NOTE:** L8-3 transducer B Steer options: B Steer (0°), B Steer 15 (15° right), B Steer –15 (15° left).
Dual: OFF/ON	Press the **Dual** mode button to toggle the Dual imaging function on/off. ***Hard key not available on the Special Procedures interface.*** **NOTE:** The Dual imaging function allows for displaying two separate images on the screen (at the same time) for concurrent comparison/analysis.
Dual: Toggle	Press the **Enter** button to change the selection of the active/selected image (left or right image, as displayed on screen). ***Hard key Toggle not available on the Special Procedures interface.***
Simul: (Dual)	Press the softkey assigned to **Simul** to toggle on/off the simultaneous dual imaging update modality. **NOTE:** When simul dual is active, the two different images, potentially using different modalities (i.e., color Doppler and power Doppler) are dynamically updated, simultaneously. When this function is *deselected* (standard dual mode) one image is static, while the other image is dynamically active.

M-Mode Controls

M Control	Description/Use
***** Indicates this control is also available in retrospective processing.	
Gain*****	Rotate outer ring of the **M-Mode** button to adjust gain.
Depth	Press the **Depth** rocker button UP to decrease depth; press DOWN button to increase depth.
Frequency	Press the **Frequency** button to cycle through the transmit frequency choices. The selected value is displayed in the Image Information area. ***On the Special Procedures interface, repeated pressing of the push button cycles through the frequency options.***
Menu	While M-mode is active the **Menu** button invokes a pop-up menu showing many secondary optimization controls including: • **Display Format** (full size and split-screen)***** • **Sweep Speed*** • **Maps*** • **Tint*** • **Dynamic Range*** • **Persistence*** • **Acoustic Output**

Color Doppler/Power Doppler Mode Controls

CD/PD Control	Description/Use
***** Indicates that this control is also available in retrospective processing	
Gain*****	Adjust Gain by rotating the outer ring of the **C-Mode** button.
Softkeys	While Color Doppler is active the Softkeys at the back of the console shows many optimization controls including: • **Steer (Linear transducers only)** • **Invert*** • **Filter*** • **Scale** • **Baseline*** • **Power/Velocity Doppler**
Frequency 	Press the **Frequency** button to cycle through the transmit frequency choices. ***On the Special Procedures interface, repeated pressing of the push button cycles through the frequency options.***
Menu	While Color Doppler is active the **Menu** button invokes a pop-up menu showing many secondary optimization controls including: • **Maps*** • **Flash Cancelation** • **Persistence*** • **Edge*** • **Acoustic Output**

Strip Doppler Mode Controls (Pulsed Wave and Continuous Wave)

Note: Continuous Wave Doppler imaging is available only on z.one$_{pro}$ *system equipped with the Echocardiology or Advanced Vascular Options.*

Doppler Control	Description/Use
***** Indicates that this control is also available in retrospective processing.	
Gain*****	Adjust Gain by rotating the outer ring of the **D-Mode** button.

Softkeys	While PW Doppler is active the Softkeys at the back of the console shows many optimization controls including:
	• **Update:**
	  ○ Update On: Only the B-mode or the Doppler strip is active, not both. Pressing the select key toggles which is active.
	  ○ Update Off: B-mode and Doppler strip are active simultaneously.
	• **Filter***
	• **Invert***
	• **Gate Size**
	• **Baseline***
	• **Angle***
	  ○ Turning the knob changes the angle correct in 1-degree increments.
	  ○ Pressing the knob snaps the angle correct to (-60-0-60°)
	• **Volume**
	• **Steer (Linear transducers only)**
	  ○ Turning the knob changes the steer in 1-degree increments.
	• Pressing the knob snaps the steer to preset angles. If CD is active then its steer angle snaps to align.
	PW/CW: See CW and Echocardiography section

Menu	While strip Doppler is active the **Menu** button invokes a pop-up menu showing many secondary optimization controls including: • **Gate Size** • **Dynamic Range*** • **Sweep Speed*** • **Display Format**(full size and split-screen)* • **Maps*** • **Tint*** • **Acoustic Output**

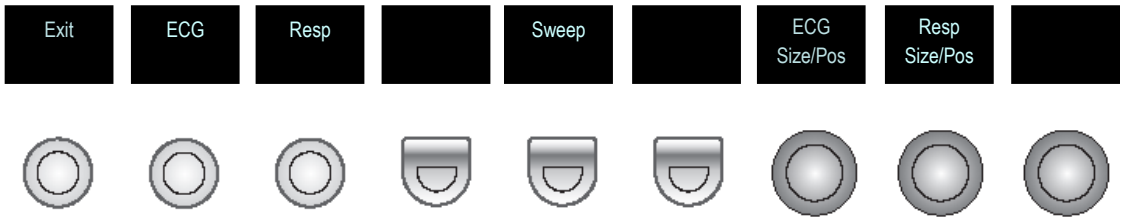
There are two mechanisms to invoke CW:

- It can be assigned to a Programmable Mode Key in System setup -> Keys. When invoked this way the programmable mode key acts as a CW hard key and the "D" mode button is dedicated to PW.
- It can have shared access with PW through the "D" mode button. When invoked, the default Doppler mode is determined by preset. While strip Doppler is active the right-most soft key toggles between PW and CW. Subsequent invocations of strip Doppler invoke the last used Doppler mode.

The optimization controls available in CW are generally the same as in PW. See the Strip Doppler section (above) for details.

Physio Controls

The Echocardiography Option includes a physio module that supports ECG and respiratory traces. The ECG must be active to enable respiratory. Presets determine if EGG or both traces are on by default. The physio traces can be enabled/disabled and controlled through the "ECG" key in the top row of the keyboard. When the ECG function is invoked the following softkeys are displayed:



Physio Control	Description/Use
***** Indicates that this control is also available in retrospective processing.	
Exit	Exits the ECG control function without changing the traces.
ECG	Enables or disable the ECG trace
Resp	Enables or disables the Respiratory trace. ECG must be active for the Respiratory trace to be active.
Sweep	Changes the sweep speed of the traces in 2D and Color. This control does not apply during strip imaging modes.
ECG Size/ Pos	Pressing this knob toggles between controlling the position and size of the ECG trace. Turning the knob changes the position or size.
Resp Size/ Pos	Pressing this knob toggles between controlling the position and size of the Resp trace. Turning the knob changes the position or size.

NOTE: ZONARE recommends the following ECG patient cables and lead wires from Advantage Medical Cables (AMC) (www.advantagemed.com):

- AMC LW-3700024/3I (International patient lead wire replacements)
- AMC LW-3700024/3A (Domestic patient lead wire replacements)
- AMC CB-83340 (ECG trunk cable)
- AMC CB-33598-00 (Accessory cable for use without lead wires)

Contrast, Elastography & 3D/4D (Options)

Refer to Section 7: Advance Features for details on Contrast and Elastography. Refer to Section 8 for information related to 3D/ 4D Imaging.

4. Transducers

- Refer to ZONARE's Transducers Cleaning and Disinfection, Q00066, for directions, cautions and warnings associated with the care and maintenance of ZONARE transducers.
- Always examine transducers for damage, such as cracks, splitting, holes, or fluid leaks. If damage is evident, discontinue use of the transducer and contact ZONARE.

The following ZONARE transducers may be available for use with the z.one$_{pro}$ ultrasound system.

NOTE(1): The z.one$_{pro}$ *Ultrasound System is designed for compatibility with the following transducers. Because the availability of transducers is subject to government regulation and approval, some items included in the table may not be commercially marketed nor made available in your region of use.*
NOTE(2): Once approved in accordance with local government regulation, access to transducers is further controlled by individual transducer licensing as determined by purchased system configuration.

Transducer	Applications	Biopsy Guide
A2CW	Cardiac, Adult Cardiac, Pediatric Pediatric	No
A5CW	Pediatric Peripheral Vascular	No

Transducer	Applications	Biopsy Guide
C4-1 	Abdominal (includes renal, GYN/Pelvic) Cardiac, Adult Contrast Fetal Musculo-skel (conventional) Pediatric	Yes CIVCO Infiniti™ Needle Guidance System #698-013
C6-2 	Abdominal (includes renal, GYN/Pelvic) Contrast Fetal Pediatric Peripheral Vascular	Yes CIVCO Ultra-Pro II™ Needle Guidance System #698-003
C8-33D 	Abdominal (includes renal, GYN/Pelvic) Fetal Pediatric Peripheral Vascular 3D/4D	No
C9-3 	Abdominal (includes renal, GYN/Pelvic) Contrast Fetal Intra-operative (abdominal) Intra-operative (vascular) Musculo-skel (conventional) Musculo-skel (Superficial) Pediatric Peripheral Vascular	Yes CIVCO Infiniti Needle Guidance System #698-009

Transducer	Applications	Biopsy Guide
C9-3sp 	Abdominal (includes renal, GYN/Pelvic) Contrast Fetal Intraoperative (Neuro, abdominal, thoracic (cardiac) and vascular (PV)) Musculo-skel (conventional) Musculo-skel (Superficial) Neonatal Cephalic Pediatric Peripheral Vascular Small Organ (Thyroid, Breast, Testes, etc)	No
C10-3 	Abdominal (includes renal, GYN/Pelvic) Adult Cephalic/ trans-cranial Cardiac, Adult Cardiac, Pediatric Fetal Intra-operative (Neuro, abdominal, thoracic (cardiac) and vascular (PV)) Neonatal Cephalic Pediatric Peripheral vascular	No
E9-3 3D 	Fetal Trans-rectal Trans-vaginal 3D/4D	No

Transducer	Applications	Biopsy Guide
E9-3 	Fetal Trans-rectal Trans-vaginal	Yes ZONARE Reusable Endocavity Needle Guidance System #Z168-00 ZONARE Disposable Endocavity Needle Guidance System #Z169-00
E9-4 	Fetal Trans-rectal Trans-vaginal	Yes CIVCO Disposable Transvaginal Needle Guidance System #698-010, #698-011, #698-014 CIVCO Reusable Endocavity Needle Guidance System #698-002
L8-3 	Fetal Abdominal (includes renal, GYN/Pelvic) Intra-operative (Neuro, abdominal, thoracic (cardiac) and vascular (PV)) Pediatric Small Organ (Thyroid, Breast, Testes, etc) Musculo-skel (Conventional) Musculo-skel (Superficial) Peripheral Vascular	Yes CIVCO AccuSITE™ Needle Guidance System #698-005

Transducer	Applications	Biopsy Guide
L14-5sp 	Abdominal (includes renal, GYN/Pelvic) Fetal Intraoperative (Neuro, abdominal, thoracic (cardiac) and vascular (PV)) Musculo-skel (conventional) Musculo-skel (superficial) Neonatal Cephalic Pediatric Peripheral Vascular Small Organ (Thyroid, Breast, Testes, etc)	Yes CIVCO AccuSITE™ Needle Guidance System #698-006
L14-5w 	Abdominal (includes renal, GYN/Pelvic) Contrast Fetal Intraoperative (Neuro, abdominal, thoracic (cardiac) and vascular (PV)) Musculo-skel (conventional) Musculo-skel (superficial) Neonatal Cephalic Pediatric Peripheral Vascular Small Organ (Thyroid, Breast, Testes, etc)	Yes CIVCO AccuSITE™ Needle Guidance System #698-012 CIVCO Infiniti™ Needle Guidance System #698-007
L10-5 	Abdominal (includes renal, GYN/Pelvic) Fetal Intraoperative (Neuro, abdominal, thoracic (cardiac) and vascular (PV)) Musculo-skel (conventional) Musculo-skel (superficial) Neonatal Cephalic Pediatric Peripheral Vascular Small Organ (Thyroid, Breast, Testes, etc)	Yes CIVCO Infiniti Plus™ Needle Guidance System #698-015 CIVCO Ultra Pro™ Needle Guidance System #698-004 CIVCO AccuSITE ™ Needle Guidance System #698-008

Transducer	Applications	Biopsy Guide
L20-5	Abdominal (includes renal, GYN/Pelvic) Contrast Fetal Intraoperative (Neuro, abdominal, thoracic (cardiac) and vascular (PV)) Musculo-skel (conventional) Musculo-skel (superficial) Neonatal Cephalic Pediatric Peripheral Vascular Small Organ (Thyroid, Breast, Testes, etc)	No
P4-1c	Adult Cephalic/ Trans-cranial Abdominal Cardiac Adult Cardiac Pediatric Contrast Fetal Neonatal Cephalic Pediatric Peripheral Vascular	No
P8-3TEE	Transesophageal Echocardiography (non-cardiac and cardiac)	No
P9-3ic	Intracardiac Echocardiography	No

TEE Transducer (P8-3TEE)

The z.one$_{pro}$ system will support TEE imaging when used with the P8-3 TEE transducer.

Refer to TEE Transducer Care and Maintenance (Q00195) for instructions on inspecting, cleaning, and maintaining the P8-3 TEE transducer.

Scan plane rotation is controlled by two push-buttons on the control handle and can be rotated from 0° to 180°. The wheels on the handle of the transducer control the deflection of the tip. The smaller lower wheel is used to control the transducer Left/Right tip deflection (see Figure below). The larger wheel on top of the handle is used to control the transducer Anterior/Posterior tip deflection. Both wheels have a friction lock and freely moving mode.

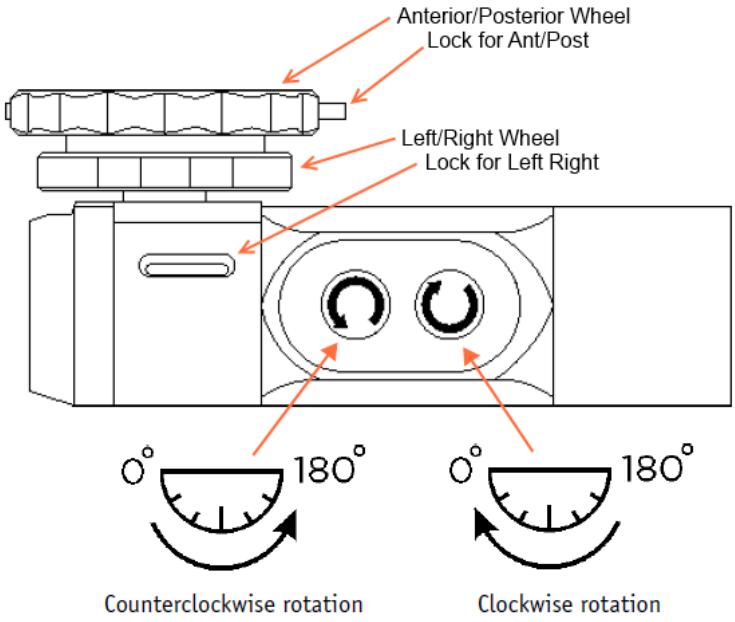
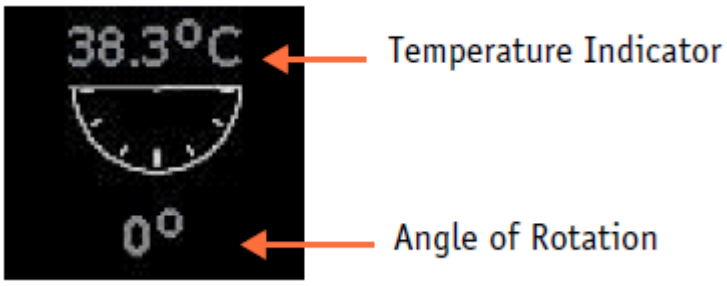


Figure 4-1: TEE Transducer Handle

The TEE probe includes a sensor to monitor the temperature of the tip during use. While imaging the following on-screen indicator is shown:



The angle of rotation shows the scan plane rotation while the temperature indicator shows the temperature at the transducer face. This indicator can optionally be turned off if the temperature is below 40.5°C. Above that temperature the indicator will always be displayed. In addition:

- If the temperature reaches 41.5°C the system will automatically freeze and display a warning message. This warning message can be dismissed and imaging can continue. While operating at this temperature is safe, close monitoring of the temperature is recommended. The temperature indicator will show in yellow to indicate this.
- If the temperature reaches 42.7°C the system will automatically freeze imaging. The transducer must be disconnected and allowed to cool off before additional imaging is supported.

The z.one*pro* organizes presets by transducer and by exam type. The exam type is a mechanism to filter the list of presets seen for any given transducer. The following table shows the exam types supported for each transducer:

Transducer	Abdomen	OB	GYN	Vascular	Cardiac	Small Parts	Pediatrics
A2CW					**X**		
A5CW				**X**			
C4-1	**X**	**X**	**X**		**X**		**X**
C6-2	**X**	**X**	**X**	**X**			**X**
C8-3 3D	**X**	**X**	**X**	**X**			**X**
C9-3	**X**	**X**	**X**	**X**			**X**
C9-3sp	**X**			**X**		**X**	**X**
C10-3	**X**	**X**	**X**	**X**	**X**		**X**
L14-5w	**X**			**X**		**X**	**X**
L14-5sp	**X**			**X**		**X**	**X**
L10-5	**X**			**X**		**X**	**X**
L20-5	**X**		**X**	**X**		**X**	**X**
L8-3	**X**			**X**		**X**	**X**
E9-3 3D		**X**	**X**				
E9-3		**X**	**X**				
E9-4		**X**	**X**				
P4-1c	**X**	**X**	**X**	**X**	**X**		**X**
P8-3TEE					**X**		
P9-3ic					**X**		

5. Measurements and Annotation

Measurements

Generic measurements are accessed in all imaging modes by pressing the **Meas** button. A subset of measurements is available in live imaging.

Most presets have specific pre-defined measurements, calculations and reports associated with them. These are accessed by pressing the **Calc** button on a frozen/cine image.

The **Undo** button will generally undo the last measurement action. For example, it can be used to remove a caliper that had been accidentally invoked.

The **Enter** button will generally finalize the currently active measurement. For example, within the calc package it will enter the current measurement into the report. Within generic measurements it will lock the current measurement in place so that an additional measurement can be invoked.

B-Mode (2D)

Depth: Depth is the only 2D measurement available on a live image. On a live image pressing the **Meas** button immediately invokes the Depth measurement.

Distance: Once Distance is selected from the **Meas** menu the first half of a caliper pair appears. Pressing the set button locks that in place and the second half of that caliper pair appears.

Circ/Area: Circumference and area measurements can be done with either a trace or ellipse. The preferred tool can be configured in System Setup→Calcs→General.

Volume: Volumes are supported with 3 linked caliper pair measurements. Press **Enter** after the first caliper pair to invoke the second. The third pair is invoked after the image is unfrozen and then frozen again.

M-Mode

Depth: Depth is the only M-mode measurement available on a live image. On a live image pressing the **Meas** button immediately invokes the Depth measurement.

Distance: Once Distance is selected from the **Meas** menu the first half of a caliper pair appears. Pressing the set button locks that in place and the second half of that caliper pair appears.

HR: By default the HR measurement assumes that one beat is measured. The default number of heart cycles can be changed in System Setup→Calcs→General.

PW Doppler

Doppler measurements can be performed by either manual measurements or Auto-Trace

Auto-Trace

There are multiple ways of invoking auto-Trace. Any of the following may be used:

- A function key can be configured for auto-Trace in System Setup->Keys.
- Double-clicking on the **Meas** button while Doppler is active.
- Selecting Auto-Trace from the **Meas** menu.

Once Auto-Trace is active the Meas menu can be used to select which result is displayed. Most results require a Max waveform, which is displayed in green on the Doppler strip. TAMn and Vol Flow require a Mean waveform, which is displayed in yellow on the Doppler strip.

On the live image the results update automatically. The number of heart cycles included in the result can be configured in System Setup→Calcs→Auto-Dop.

Manual Measurements

Velocity: Velocity is the only Doppler measurement available on a live image. On a live image pressing the **Meas** button immediately invokes the Velocity measurement.

Velocity Pairs, RI, Accl, S/D, A/B: These are selectable from the Meas menu while a frozen Doppler strip is displayed. They invoke caliper pairs with a user interface as described above.

PI: This invokes a trace measurement. The first press of the Set key locks the beginning of the trace in place. The next press of the Set key completes the trace.

HR: By default the HR measurement assumes that one beat is measured. The default number of heart cycles can be changed in System Setup→Calcs→General.

Annotations

Enter Text Manually

The annotation function may be invoked by pressing the **spacebar**, the **Text** key on the keyboard, or the **Annotation** button on the console.

By default annotation is in overwrite mode: text to the right of the cursor is replaced as you type. Pressing the set key switches to insert mode: text to the right of the cursor is shifted to the right as you type.

A block of text can be moved around the screen by double-clicking the set key while the edit cursor is in that block of text.

Deleting Text:

1. To delete the last word you typed, press the **Del Text/Del Word** key.
2. To delete all text displayed, press **Shift** + **Del Text/Del Word**.

Annotation Softkeys

While the annotation function is active the **softkeys** above the console are used by annotation.
The three left keys support pre-defined lists:

- Left, Right
- Long, Trans, Sag, Cor
- Dist, Prox, Mid
- The three middle keys support lists that can be customized in System Setup→Annotation. Each preset can have 3 lists. The lists can be defined under the "Define Lists" option.
- The three right keys support Body Patterns that can be customized in System Setup→Annotation.

Arrows

Arrows can be activated by pressing the Arrow key on the keyboard. Once active, the set key will toggle between positioning and rotating the arrow.

Double-clicking the set key while an arrow is active will lock it in place and create another arrow. Arrows are removed automatically when the image is unfrozen.

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6. Archiving and Review

Image Print and Storage

On the z.one$_{pro}$ there are three keys that can be configured to either print or store: **Store 1, Store 2,** and **Print.**
On the z.one$_{pro}$ SP there are two keys that can be configured to either print or store: **Store** and **Print.**
These can be configured to send images to an optional printer, hard drive, DICOM networked device, or FTP site.

These keys can be configured in System Setup →Archive→Store/Print. Any of these keys can be configured for any subset of store/print destinations.

To avoid data loss, always use back up storage/archive devices. Do not delete patient data and images from the scanner until the backup has been completed and the ability to read transferred details is verified.

Review

There are three functions that provide a mechanism to review images. Each of these buttons is on the back row of the keyboard:

- **Current Exam:** Displays images and clips for the currently active exam.
- **Archive:** Displays a list of previous exams. By default this shows the list of exams present on the internal hard drive. A drop-down menu on this screen will switch to a list from any media inserted in the USB port or DVD. From this screen the exams can be viewed, copied, deleted, or exported.
- **New Patient:** This displays the patient demographic screen for new patients. This screen also has a **Restart** button to restart previously completed exams. Only exams that have been completed within a recent window of time can be restarted. That window can be configured in System Setup → Archive → Exam Mgmt.

DICOM Connectivity

When activated and configured, DICOM connectivity enables the ZONARE ultrasound system to exchange data – including ultrasound images and associated patient and exam data – with DICOM-compliant archive devices, output devices and worklist applications over an institution's

network. Each such device must be configured. Refer to ZONARE's DICOM Conformance Statement, C90303.

Wireless (Option)

ZONARE supports wireless connectivity using the Quatech Airborne Direct Wireless Ethernet Bridge. This is intended as a workflow enhancement to enable remote viewing and archival of data when a physical Ethernet connection is not available. It should not be relied upon however when time-critical diagnoses are required as multiple environmental factors may affect wireless connectivity performance.

The Quatech Airborne Direct Wireless Ethernet Bridge supports Wi-Fi 802.11b/g wireless standards and connects to the ZONARE system through a 10-Base-T network interface. This device supports WEP (64/128bit) and WPA encryption standards, and LEAP for network authentication (LEAP required the Quatech device to be configured with a static 128 bit key; this is known as "migration mode" and is not recommended for long-term use due to the static WEP key requirement).

Before using it with the ZONARE system, the Quatech Airborne Direct device must be preconfigured for the user's networking environment – SSID, channel, encryption, and correct addressing scheme (DHCP/ static).

When power is applied to a correctly configured Quatech Airborne Direct device that is connected to the Ethernet port on the ZONARE system, it will require 30 to 60 seconds to detect and then to associated with the user's wireless network. Once a wireless network connection is established, the ZONARE system will reflect the connection state by showing the network icon in an uncrossed state.

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7. Advanced Features

Contrast

Contrast imaging is a separately purchased option. It is a harmonic detection mode specifically designed to enhance ultrasound contrast agent signals. Similar to 2D (B-Mode), a suite of additional optimization controls are provided to further enhance contrast agent imaging performance.

NOTE: The z.one$_{pro}$ *Ultrasound System is designed for compatibility with commercially available Ultrasound contrast agents. Because the availability of these agents is subject to government regulation and approval, product features intended for use with the agents may not be commercially marketed nor made available before the contrast agent is cleared for use. Contrast-related product features are enabled only on system for delivery to an authorized county or region of use.*

Read and follow contrast agent instructions provided by the manufacturer.

Contrast must be configured to a programmable function or mode key before use. These keys can be configured in System Setup → Keys.

Once configured, contrast is invoked by pressing the configured function or mode key. By default the image goes to a dual display, with the contrast image on the left and a reference image on the right. Pressing the **Dual** key will toggle to a display showing the contrast image overlaid on the reference B-mode image ("mixed transparency").

Contrast imaging parameters are independent of the B-mode settings for Tint, Gain, and Dynamic Range. Setting those values while in Contrast has no impact on the B-mode image. All other image optimization parameters available in Contrast are shared with B-mode. While in Contrast the softkeys display an option to reduce the frame rate. Frame rates down to 0.1Hz are supported.

The Contrast softkeys also support a stopwatch function. The second softkey from the left shows a Start/Stop control for the stopwatch. When the stopwatch is in the stopped state the adjacent softkey will reset the timer to zero. When the stopwatch is in the running state the

adjacent softkey has a "lap timer" function to support multiple phases of contrast. Up to 4 phases can be displayed with this control.

During Contrast imaging, it may be desirable to periodically clear the contrast agent. This is accomplished by temporarily increasing the delivered power within the power management range for the transducer to rupture the contrast bubbles. The "flash" frame is of user-selectable duration and delivered via softkey selection.

Elastography

Elastography is a separately purchased option. Elastography must be configured to a programmable function or mode key before use. These keys can be configured in System Setup → Keys.

Once configured, elastography is invoked by pressing the configured function or mode key. By default the image goes to a dual display, with the elastography image on the left and a reference image on the right. Pressing the **Dual** key will toggle to a display only showing the elastography image.

Elastography is available for the following transducers:

- L8-3
- L10-5
- L14-5w
- L14-5sp
- L20-5

Elastography supports three types of strain acquisition. The softkey second from the right can be used to choose between these:

- Relative (normalized) strain: This generally has similar sensitivity to hard and soft tissue.
- Absolute strain: Strain is displayed without normalization.
  Cross-correlation: This assesses the quality of the acquisition by comparing frame-to-frame correlations.

While in Elastography dual display, generic measurements can be done on either image. A measurement performed over the strain image will also display on the reference B-mode image.

8. 3D & 4D Imaging (Option)

3D/4D imaging may be available on ZS3 when used with the C8-3 3D or E9-3 3D transducers.

NOTE: The ZS3 Ultrasound System is designed for compatibility with 3D/4D transducers. Because the availability of transducers is subject to government regulation and approval, some items included in the table may not be commercially marketed nor made available in your region of use.

A Programmable Mode key must be assigned to 3D in order to invoke 3D/4D imaging. These keys can be configured in System setup -> Keys.

Softkeys

3D/4D Control	Description/Use
When 3D/4D is invoked the following pre-acquisition softkeys are displayed:	
Start / Stop Softkey Label: **Start**	Press to invoke the start of a **3D Volume** Pressing again during acquisition will stop it Press the **Freeze** button to do the same thing
Postprocessng Mode Softkey Label: **Render / MPR / Tomo**	Use to select the type of **3D Volume** desired: **Render [surface] / MPR / Tomo** See "Postprocessing Modes" section for details
One-up / 4-up Toggle Softkey Label: 	Press to display **Volume** as a single, large image Press again to return to 4-up (**A**, **B**, **C** planes and **Volume**)
Acquisition Quality Softkey Label: **Quality**	Press to select the **Quality** factor of the **Volume** set: **HIGH / BAL**anced **/ FAST** Default is **HIGH**
Elevation Sweep Angle Softkey Label: **Angle**	Press to select the length of the sweep: **75 / 60 / 45 / 30 / 20** Default is **60** degrees
3D/4D Mode	Press to select **Static** (3D) or **Real-Time** (4D) mode

Once a 3D volume has been acquired the following post acquisition softkeys are displayed:

Control	Description/Use
Edit ROI (edit box appears) Softkey Label: **Edit ROI**	Only the **A** plane image has an adjustable curved cutline Press to activate edit box for the selected plane Press **Set** to cycle box functionality: **Position / Size / Cutline**
Postprocessng Mode Softkey Label: **Render / MPR / Tomo**	See the pre-acquisition softkeys.
One-up / 4-up Toggle Softkey Label: 	See the pre-acquisition softkeys.
Slice Selection Softkey Label: 	Press to select a slice or volume: **A / B / C / V** Default slice is **A**
Cubic Dimension (6 sides) Softkey Label: 	Press to select the viewing side for the active slice or volume Default is **Top** view
Volume Rotation Softkey Label: 	Press to rotate the volume to one of 4 discrete degrees: **0 / 90 / 180 / 270** Default is **270** degrees
Volume Movement Softkey Label: 	Turn to move through the volume set: **XYZ**

Control	Description/Use
Rotation (3 axes plus rotation) Default Softkey: 	Turn to rotate the selected plane or volume Press to switch the axes. Default is **Volume** with **Z-axis** Softkey options: X-axis Y-axis Z-axis Can alternatively use these **Major Mode** buttons on the **Control Panel**: **M** = **X-axis** / **D** = **Y-axis** / **C** = **Z-axis**
Threshold / Opacity / Brightness Softkey Label: **Threshold / Opacity / Brightness**	Selectable control with rotary action to adjust control parameters Turn softkey to increase or decrease the value of each parameter Press softkey to switch parameters Default is **Brightness** Can also use the **B-Mode** button to adjust **Brightness**

Menu Items

The Menu hard key displays the following options while in 3D/4D imaging:

Control	Description/Use
Reset	Select to return volume back to original state
Mode	Press arrows to select an option: **Surface / Max Int / X-Ray / Min Int** Chosen option displays on **Data Display**
Render Quality	Changes the resolution quality of the rendered image Press arrows to make selection: **FAST / BALANCED / HIGH / MAX** Chosen option displays on **Data Display**
Tint	Press arrows to select among 4 tints:1 gray / 3 colorized
Render Smoothing	Press arrows to select the amount of smoothing desired: **0 / 1 / 2 / 3 / 4 / 5** Default is **3** Chosen option displays on **Data Display**

Control	Description/Use
Invert	Toggles **On / Off** Inverts volume image to black on white

Post-processing modes

The ZS3 supports three post-processing modes: Render, MPR, and Tomo

Render Mode

The imaging screen displays the surface volume image in a large format with the three orthogonal image planes in a small format. The volume image (**V**) is the active window by default.

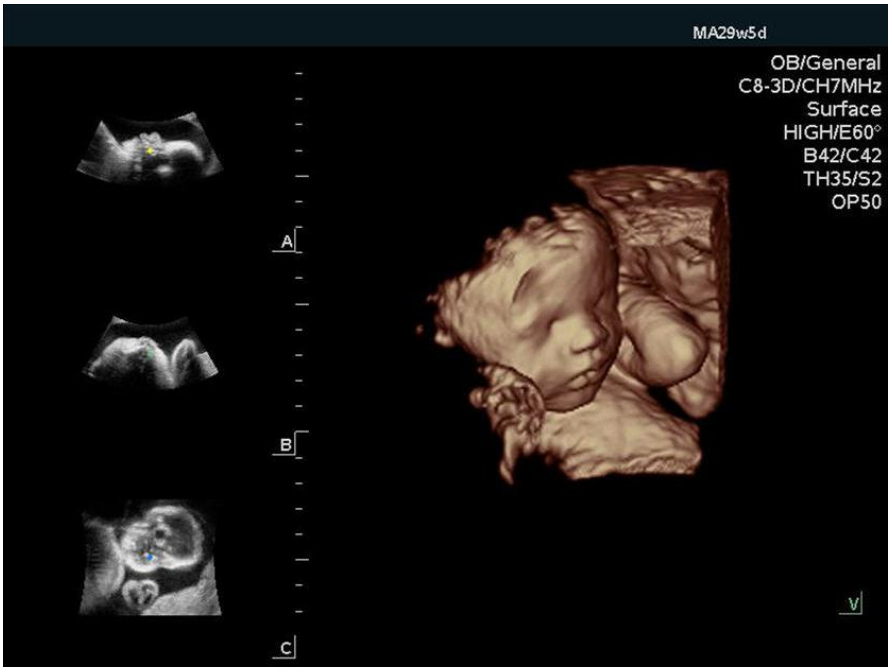

Figure 8-1: Render Mode

MPR Mode

MPR mode displays orthogonal planes (**A**, **B** & **C**) vertically; larger image is blow up of active image

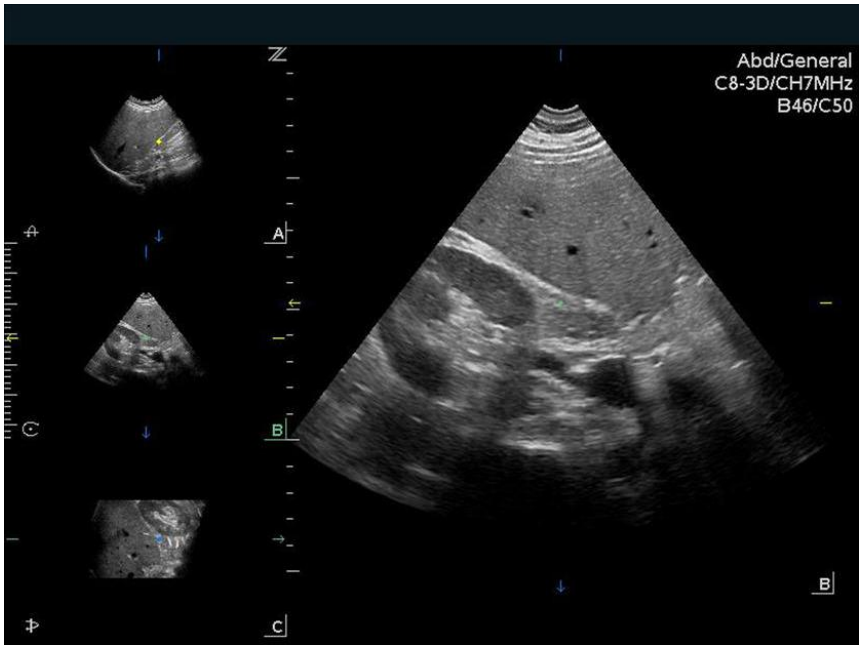

Figure 8-2: MPR Mode

Features include:

- Ability to cycle (forward & backwards) through different windows - **A**, **B**, & **C** planes
- Ability to measure off primary image using system **Measurement** and **OB Calcs** options
- **Thick Slice*** feature under **Menu/Tab** secondary controls

Thick Slice Mode: *Integrates information along the z-axis to provide better contrast resolution. Maximum intensity and minimum intensity modes are supported.*

Tomo Mode

In **Tomo** mode, 9 images are displayed (9-up) with one image as reference for slices.

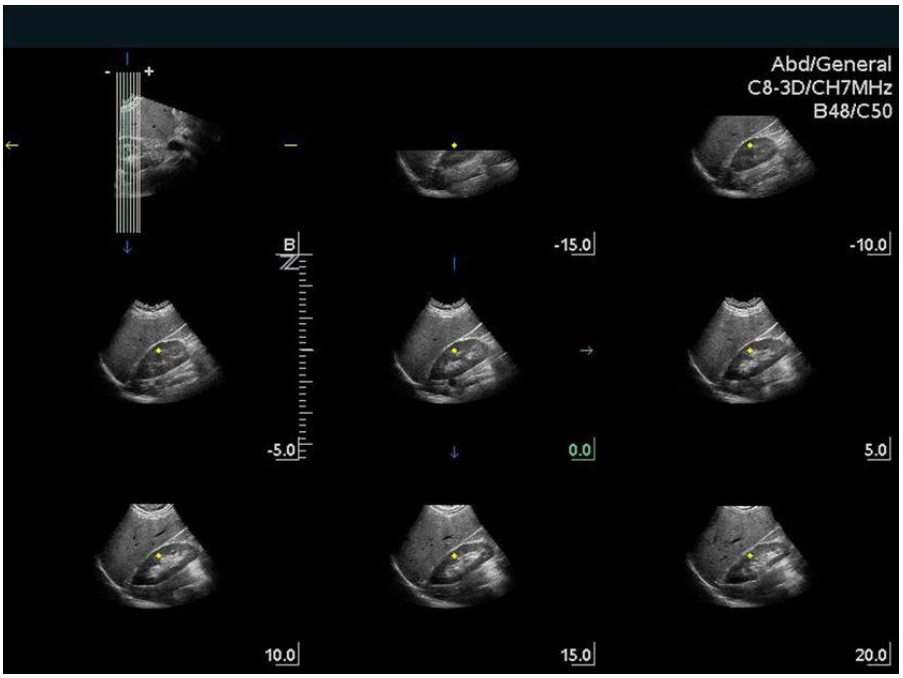

Figure 8-3: Tomo Mode

Features include the following abilities:

- Change line spacing between slices in mm and position of the set of lines using the **Trackball**
- Select reference image (one only) using softkey
- Toggle between **One-up** and **9-up**
- Perform measurements on **One-up** image
- Toggle slice lines' orientation from vertical to horizontal via softkey

9. Maintenance

User Diagnostic Panel

The user diagnostic panel is accessed through the **Service** key on the back row of the keyboard. A short press of that key activates the diagnostic panel. A long press of the key stores current logs; the system beeps as logs are stored.

The user diagnostic panel supports the following:

- Checking system software revision level
- Checking system serial number
- Checking revision levels of major PC boards
- Capturing system status to log files
- Capturing current image screen and storing as a BMP file
- Transferring the contents of the internal log directory (using an internet connection) to the ZONARE FTP site
- Checking (over the Internet) for availability of software and firmware (cart) updates from the ZONARE FTP site

System Care and cleaning

Before cleaning, turn off the AC circuit breaker on the z.one$_{pro}$ system to remove all power from the unit.

To clean the LCD display:

- Clean the glass using a soft cotton cloth lightly moistened with a watery solution or a mild commercial glass-cleaning product suited for coated glass surfaces.
- Wipe dry with a clean, dry, soft, lint-free cloth.
- Take care not to damage or scratch the glass or LCD panel. Do not apply pressure on the glass or LCD panel. Do not apply or spray liquid directly to the glass, panel, or cabinet as excess liquid can cause damage to internal electronics. Apply the liquid to the cleaning cloth.

To clean the External Case:

- Do not use disinfectants (such as gluteraldahyde) or acetone to clean any surfaces on the z.one$_{pro}$ system or its accessories.
- Wipe the z.one$_{pro}$ surfaces with a safe disinfectant solution such as Sani-Cloth Plus or 50% isopropyl alcohol and follow the disinfectant label instructions for use.
- Do not spill or spray liquid directly on the control panel, LCD display or transducer connector.

- Using soap and water or a mild disinfectant, gently wipe the surfaces of the z.one*pro* system with a moistened cloth.
- After each use, remove and dispose of any used cover/sheath. Wipe off any excess gel from the transducer and clean it properly.
- Air dry the z.one*pro* system.

10. Safety

It is not possible for ZONARE to anticipate every condition and situation in which ZONARE ultrasound system will be used. The following warnings and cautions represent typical situations that require special attention. User knowledge and experience with a specific application and environment must also be taken into consideration in order to help ensure the safety of personnel and equipment.

Safety Standards

All ZONARE instruments, cables, and diagnostic ultrasound imaging transducers have been designed to meet the essential requirements contained in 93/42/EEC (Medical Device Directive), and all appropriate requirements contained within UL 60601 (Standard Medical Electrical Equipment, Part 1: General Requirements for Safety), IEC 60601 (Medical electrical equipment - Part 1: General requirements for basic safety and essential performance), IEC 60601-2-37 (Medical electrical equipment - Part 2-37: Particular requirements for the safety of ultrasonic medical diagnostic and monitoring equipment) and JIS-T-1501 (General Methods of Measuring the Performance of Ultrasonic Pulse-Echo Diagnostic Equipment), including limits for current leakage and isolation from a primary power line. Testing for compliance with the essential requirements of the Medical Device Directive has been performed.
The following is a comprehensive list of the Warnings & Precautions associated with the use of ZONARE's ZS3 Ultrasound Platform and products derived there from (for example, but not limited to, the ZS3 and the z.one$_{pro}$ with and without the SP UI option) and compatible transducers.

Warnings

- Do not remove any of the System covers other than the module cover. Other than the scan module there are no user-serviceable parts internal to the system. Only trained ZONARE service personnel should access the system's internal electronics.
- The ultrasound systems contain no operator-serviceable components within the enclosures. To avoid electrical shock, do not remove covers. As with any other electrical equipment, always observe care when operating this instrument. For service issues, contact ZONARE Technical Support. Failure to follow these restrictions may void your warranty or service contract coverage.
- To reduce the risk of electric shock, DO NOT connect the z.one$_{pro}$ system input or output connections to equipment that is not properly connected to an Earth ground

- To achieve proper grounding reliability, the ultrasound system power plug must be fully inserted into a receptacle marked "hospital grade." Do not remove the grounding wire. If there is any question of power outlet or power cord integrity, do not proceed. Obtain qualified assistance
- To maintain proper grounding reliability, use only ZONARE-recommended peripherals and accessories. Use of non-specified peripherals and accessories could result in risk of electrical shock or injury
- The ultrasound systems represent a potential explosion hazard if used in the presence of flammable anesthetics.
- The system does not contain a user-serviceable lithium ion battery.
- The optional ZPAK cart battery is not a user serviceable item. Contact ZONARE's Technical Support group for assistance with the ZPAK battery.
- Follow guidelines provided by IEC 60601 when connecting peripherals.
- The USB Memory Sticks supplied by ZONARE are the recommended brand, type, and sizes for use in z.one$_{pro}$ systems. They have been verified for optimum reliability and performance
- No modification of the system is permitted. Modifying the system may subject the operator or patient to hazardous conditions.
- To reduce the risk of electric shock, do not connect the z.one$_{pro}$ input or output connections to equipment that is not properly connected to an Earth ground.
- The z.one$_{pro}$ ultrasound system represents a potential explosion hazard if used in the presence of flammable gases or oxygen rich environment.
- Use only transducers that are specifically approved and licensed for the ultrasound system. If the proper identification of a connected transducer is not displayed on screen, do not proceed with its use.
- Transducers covers may be contaminated and must be handled accordingly.
- Inspect the transducer and z.one$_{pro}$ Ultrasound System before each use. Inspect the transducer face, housing, cable, connectors, and cases. Do not use the unit if damage is detected.
- Bent, broken, or missing pins on the transducer connector may cause poor image quality, including possible mirror image artifact. Be sure to check pins before connecting transducer to the ZONARE ultrasound system. If pins are bent, broken, or missing, do not use the transducer and call ZONARE Technical Support.
- To avoid electrical shock, always unplug the ultrasound system AC power cord from wall outlet before cleaning any part. Do not immerse the transducer past the specified cleaning/disinfection level, as specified in Transducer Cleaning and Disinfection (Q00066). Do not immerse the transducer for longer than the specified cleaning/disinfecting time. Do not use any transducer that has been immersed beyond the maximum limit or has been soaked longer than the maximum specified time.
- Do not allow disinfectant to contact metal surfaces. Always use protective eyewear and clothing when cleaning or disinfecting device
- Disinfectant wipes and topical spray products are not FDA cleared high-level disinfectants and do not provide adequate protection should the transducer become cross-contaminated.
- The transducer must be removed from patient contact before application of a high-voltage defibrillation.

- The system is not intended for use in conjunction with high frequency (HF) surgical equipment (tissue ablation devices). Do not use transducers connected to the ultrasound system on patients while HF surgical devices are in use.
- If using IEC 60601 compliant equipment that was not provided by ZONARE, it is required that total leakage currents be tested and validated to be below the IEC 60601 limits.
- This equipment must only be connected to a supply main with protective earth.
- Validate that measured and calculated results shown in Calc Package reports reflect the clinical observations.
- Auto-Dop Trace is intended to serve as an adjunct to the diagnostic process in evaluating blood flow during PW Doppler examinations. When using the Auto-Dop Trace feature, please evaluate the results to verify that you are in agreement before committing the values to the Calc Report Package.
- Always examine transducers for damage, such as cracks, splitting, holes, or fluid leaks. If damage is evident, discontinue use of the transducer and contact ZONARE.
- Prior to initiating any disinfection process, disconnect the transducer from the ultrasound system.
- Ensure that any connected external equipment, such as external monitors, printers and peripherals, comply with relevant standards such as IEC60601-1 and IEC60601-1-2.
- If an external video monitor is connected to the z.one$_{pro}$ system, it is necessary to ensure that an RF ferrite is clamped to the cable as close to the z.one$_{pro}$ system as possible. Use a ferrite such as Fair-Rite Products Corp. 0431167281 (or an equivalent).
- The potential equalization terminal, located by the AC Mains connection, is connected to the system chassis. It can be connected to corresponding terminals on other equipment to eliminate potential differences. Do NOT use it for additional protective grounding
- Damage to the system may cause poor image quality, including possible imaging artifacts sometimes referred to as 'halo' or 'headlight' artifacts. Regularly inspect the system for damage and know how to recognize imaging artifacts.
- There are many types of system use and system error messages that might be displayed during the use of the z.one$_{pro}$ Ultrasound System. If a message is encountered that is not self explanatory, contact ZONARE service for assistance.
- Do not touch any of the connector contacts while performing a patient examination to prevent the possibility of a hazardous current path.

Warnings - Ocular Imaging

- To avoid injury to the patient, use only the Ocular Preset when imaging through the eye. The FDA has established lower acoustic energy limits for ophthalmic use. The system will not exceed these limits only if the Ocular Preset is selected

Warnings – Battery

- To avoid electrical shock, do not touch the battery contact.
- To avoid risk of fire, explosion, or burns:
  - Do not disassemble or alter the battery.

  - Do not short-circuit the battery by directly connecting the positive and negative terminals with metal objects.
  - Do not heat or discard the battery in a fire.
  - Do not expose the battery to temperatures above 65° C (150° F).
  - Do not charge the battery near a heat source.
  - Do not leave the battery in direct sunlight.
  - Do not use a damaged battery.
  - Charge the battery at room temperature.
  - The battery should only be charged within the z.one$_{pro}$ System or a ZONARE provided battery charger.
  - Inspect the battery for damage before charging or placing the battery in the z.one$_{pro}$ System.
  - Do not connect battery to an electrical power outlet.
  - Do not continue to recharge the battery if it does not recharge fully after 4 hours.
- To avoid electrical shock, do not touch the battery contact.

Warnings – ECG

- The ECG and the Respirometer functionality are not intended for ECG diagnosis. It must not be used for intraoperative applications of the heart. Use only the recommended patient cable supplied by ZONARE. Make sure that bare parts of the electrodes and the patient do not come in contact with conductive parts, such as metal examination beds, trolleys, and similar items.
- Before defibrillation, always disconnect the ECG cable connector from the system and make sure the connector does not come in contact with other persons or conductive surfaces, such as metal examination beds, trolleys, and similar items.
- Operating your system with ECG signals below 0.25 mV may cause inaccurate results.

Warnings – TEE Transducer

- The multiplane TEE transducer should be used only by a qualified physician who has received appropriate training in proper operation of the probe and in endoscopic techniques as dictated by current relevant medical practices.
- Electrical Hazard: Any evidence of damage indicates the probe cannot be used and should be returned to ZONARE for evaluation and repair.
- Biological Hazard: Adequate cleaning and, if necessary, disinfection are carried out to prevent disease transmission. It is the responsibility of the user to verify and maintain the effectiveness of the procedure used. A single-use, sterile disposable sheath for TEE purposes can be used.
- Inspect the transducer connector pins for contamination or damaged pins that might interrupt signal flow through the connection. Be sure to check pins before connecting transducer to the ZONARE ultrasound system. If pins are bent, broken, or missing, do not use the transducer and call ZONARE Technical Support.
- Immediately replace a transducer that exhibits any damage symptoms.
- Before introducing the probe, do not rub or spray the tip of the probe with an anesthetic agent.

- Avoid forceful manipulations and excessive force in using the probe that could result in patient injury.
- Withdraw the probe only with the deflection control in the unlock mode and with the distal end of the probe straight.
- The use of a bite guard is mandatory. Failure to use the bite guard may result in damage to the probe, which could result in a safety hazard. Damage to the probe due to biting is not covered by the probe's warranty.
- Check if the maximum deflection of the tip is 90° to 120° upward, 60° to 90° downwards and 30° to 45° left/right. If the deflection shows an unwanted amount of free play or exceeds the maximal deflection angles given above, do not use the probe. Contact the service organization to re-adjust the steering of the probe. In this way, the risk of "buckling" or "U-turning" of the probe in the esophagus is minimized.
- Avoid damage to the probe by allowing nothing to protrude beyond the case when closing the lid.
- Prior to cleaning any device, turn off the system and disconnect power cord from AC power source to avoid electrical shock.
- Always use protective eyewear and clothing when cleaning or disinfecting the transducers.
- Do not allow the disinfectant to come in contact with metal surfaces (transducer connector). Use a soft cloth and warm soapy water to remove any disinfectant that remains on metal surfaces.
- Keep the control handle and transducer connector out of any cleaning or disinfection solutions. The control handle and cable may be cleaned with a damp cloth, but only the distal end of the probe up to the 100cm marker on the shaft may be placed into a disinfection solution.
- Do not use other disinfection methods like Iodine, Steam, Heat or Ethylene Oxide.
- When servicing the z.one$_{pro}$ System, always be sure to turn the circuit breaker to the OFF position.

Precautions

- Transducers are individually licensed according to system configuration. Only the following transducers are available without an advanced feature configuration: C4-1, C6-2, C9-3, C9-3sp, C8-3 3D, C10-3, E9-3 3D, E9-3, E9-4, L8-3, L10-5, L14-5w, L14-5sp, L20-5, P4-1c and P8-3TEE. The A2CW and A5CW transducers are enabled if the system is configured with either the Echocardiography or the Advanced Vascular Imaging Feature Sets. Attempting to use any other transducers will result in an error message.
- Be aware of the potential hazards associated with the environment where the ultrasound systems will be used. The systems and/or the external equipment can be damaged if signal levels are not appropriate. If peripheral equipment not specifically authorized by ZONARE is to be connected to the system, it must meet all applicable electrical safety standards that apply to the system in order to maintain ZONARE's safety integrity. Any equipment not supplied by ZONARE must be approved by ZONARE. Use of non-ZONARE-approved equipment may result in an unsafe condition, impair operation of the

ultrasound system, impair diagnostic capabilities, and void your warranty or service contract coverage.

- ZONARE transducers have a specific range of acceptable application use. Users are advised to restrict each transducer's use to those applications. Excessive bending, twisting, pulling, dragging, or compression of transducer cables may cause failure or intermittent operation of the system. Avoid rolling the cart wheels over cables. Use of cable hooks is recommended to minimize chance of damage to cables.
- If a transducer that has not been approved and licensed for use with the ultrasound system to which it is connected, or if a licensed transducer is not properly connected, the corresponding transducer identification data will not display on the LCD Display. Imaging will be disabled. Resolve this issue before continuing use.
- The ultrasound system and/or the transducer could be damaged if a nonapproved transducer is connected.
- Improper cleaning or disinfection of patient applied parts may cause permanent damage. Carefully review the manufacturer's directions for any component used with ZONARE ultrasound systems. ZONARE Medical Systems, Inc. assumes no liability with respect to single-use devices that are reused, reprocessed, or resterilized and makes no warranties, expressed or implied (including the warranties of merchantability or fitness for a particular use), with respect to such devices.
- Use of peripherals or other equipment not provided by ZONARE may result in system damage or degraded performance. Carefully review the labeling of any such equipment before connecting to the ZONARE system.
- Improper setting of imaging controls may obscure diagnostically valuable information in the display. The factory default preset maps were preselected as appropriate for most imaging circumstances. Improper user configuration of custom presets may obscure diagnostically valuable information.
- ZONARE ultrasound systems are manufactured in compliance with existing electromagnetic immunity (EMI) and electromagnetic compatibility (EMC) requirements. Use of the systems in the presence of an electromagnetic field can cause degradation of the ultrasound image.
- Electrostatic discharge (ESD), or static shock, is a naturally occurring phenomenon. ESD is common in low humidity, which can be caused by heating or air conditioning. ESD shock occurs when electrical energy is discharged from one body, to a differently charged body. To lessen the occurrence of ESD, use antistatic spray on carpets and flooring, and antistatic mats.
- To minimize potential ESD damage and electrical contact contamination, avoid touching the metal contacts for the transducer connections, at both the Ultrasound System port (z.one$_{pro}$) and the transducer connector.

- If the z.one$_{pro}$ System has been moved between environments with extremes of temperature and/or humidity, allow the z.one$_{pro}$ System to rest for at least 30 minutes in a controlled environment before using.
- Do not use the ultrasound system if any error message displays on the screen.
- Do not block airflow to any ventilation holes on the system.
- Do not submerge the transducer past the points indicated in 'ZONARE Transducers Cleaning and Disinfection' (Q00066).
- Do not spill liquid on the systems or transducers.
- Using a non-recommended cleaning or disinfectant solution, incorrect solution strength, or immersing the transducer deeper or longer than indicated can damage the transducer. Damages linked to the use of disapproved chemicals are not covered under product warranty or service contract.
- The use of non-shielded cables may result in increased emissions and decreased immunity to external signals
- Operating the systems in the presence of external electromagnetic fields can degrade the quality of the ultrasound image. High-frequency devices, such as electro-surgical devices, can produce image artifacts. If required, a review of the local electromagnetic environment may be required to minimize the sources of external noise generators.
- The use of non-ZONARE approved cables and accessories may result in increased radiated emissions as well as decreased immunity to external signal fields.
- Before beginning to image a new patient, be sure to conclude any in-progress patient exam by pressing the New Patient key. Failure to do so will result in any subsequent storing of images being mistakenly written to the previous patient exam directory.
- Some components or devices such as transducer covers used with ZONARE systems are for single-patient use only. Reuse, reprocessing, or re-sterilization of these devices may compromise their structural integrity.
- Any image sets stored on the system, which are not identified by patient name and number, will be stored with a unique number based off of the system ID.
- Exercise care in adjusting all settings to avoid obscuring low-level signals that may have diagnostic value. Improper settings can seriously degrade image quality.
- Do not touch exposed metal of transducer connector.
- Validate all entries in the Measurement Summary.
- Ultrasound imaging capabilities can vary from patient to patient. Ultrasound should be used as one component in a comprehensive diagnostic plan.
- Never leave a probe in the disinfection solution for more than 45 minutes. Please refer to the instructions for use that came with the disinfectant for minimal required exposure times. Do not forget to rinse the probe directly after disinfection.

- Only use water-soluble acoustic coupling gel. Other coupling gels can cause probe damage.
- Long-term exposure to ultrasound should be minimized. Although there have been no confirmed adverse effects produced by diagnostic levels of ultrasound, unnecessary patient exposure to ultrasound energy should be avoided, especially in the Doppler mode.
- Use of a non-compatible USB Memory Stick may result in file corruption or long file transfer times. Please confirm proper operation of any memory stick prior to attempting to use for clinical data.
- Make sure the z.one$_{pro}$ System has fully completed downloading upgrades, importing/exporting, or collecting log data to the USB Memory Stick before removing it from the z.one$_{pro}$ System. Failure to do so will result in loss of data.
- Wide variability in CD and DVD quality may prevent the system from reliably writing to and reading from some commercially available discs. ZONARE has tested the CD and DVD. For up-to-date CD/DVD recommendations, go to: http://www.zonare.com/support/accessories/media.
- Before deleting any Exam data from the z.one$_{pro}$ System, always verify that data was successfully transferred to the CD/DVD by viewing it on an external reader/player..Review the user maintenance section of the instructions for use for proper technique and approved agents for cleaning the external surfaces of the system.
- Review the z.one$_{pro}$ DICOM conformance statement before integrating with any PACS system.
- Validate Structured Report export prior to clinical use.
- Use-time from the optional z.one$_{pro}$ battery pack will vary depending on the system usage and battery conditioning. Ensure the battery is adequately charged before starting a procedure without AC main power.
- Export patient studies in a timely manner. Do not use the system storage as the sole location of patient studies for an extended period of time.
- IQ scan data should not be relied on for primary storage of diagnostic data. Use of IQ scan data across software versions is not guaranteed.
- Diagnostic data exported to CD/DVD should be verified on an external system before deleting that data from the z.one$_{pro}$ system.
- The system is not indicated for differentiation between malignant and benign breast lesions.

Precautions – TEE Transducer

- TEE: Perform an electrical leakage test prior to each use of the transducer. See the TEE Maintenance Guide (Q00195) or the TEE Leakage Test Quick Reference Guide (Q00192) for details.
- TEE: Examine the transducer prior to each use. See the TEE Maintenance Guide (Q00195) or the TEE Quick Reference Guide (K90056) for details.
- TEE: Clean and disinfect after each use.
- TEE: Always use a bite guard.
- TEE: Always use single-use probe sheath.
- TEE: Ensure articulation locks are disengaged and straighten mechanism during device insertion or extraction from patient.
- TEE: Remove the transducer from the patient prior to defibrillation.
- TEE: Handle with care, very delicate instrument.
- TEE: Do not store the disinfected transducer in the carrying case. Only use the case for transportation.
- TEE transducer is a delicate medical instrument, handle with care.
- The multiplane TEE probe is a precision instrument, which must be handled with care. It may be damaged when dropped or abused. In particular, do not allow the ultrasonic window in the tip to come into contact with a sharp object. Do not touch this window unnecessarily. Never exert force onto the acoustic window.
- The transducer connector is not watertight, and should always be kept dry. The control handle, although spray-watertight, should not be immersed.
- This equipment contains no operator serviceable components. To prevent electric shock, do not remove any covers or panels.
- Never manually deflect the distal tip of the probe; use only the deflection control wheels.
- Do not kink, tightly coil, or apply excessive force on the probe cable or shaft. Insulation failure may result.
- Under normal conditions at full acoustic power the temperature of the tip does not exceed 43°C. Be sure to check at least monthly that the temperature increase of the tip is within limits:
- Connect the probe to the Ultrasound system.
- Adjust the acoustic power to the highest value possible.
- Select Color Doppler mode.
- Wait for 2 minutes.
- Feel at the distal end of the probe if there is a temperature increase that could be harmful for the patient.

- When a brush is used for cleaning the transducer, use only a soft brush; coarse/stiff-bristle brushes may cause transducer damage
- Keep the control handle and transducer connector out of any cleaning or disinfection solutions. The control handle and cable may be cleaned with a damp cloth, but only the distal end of the probe up to the 100cm marker on the shaft may be placed into a disinfection solution.
- During immersion disinfection, never immerse the transducers longer than 45 minutes. Damage may occur to the transducer housing and/or components if disinfection times exceed these recommended limits.

Precautions – 3D/4D Imaging

- 3D: Measurements out of plane are potentially less accurate due to movement of tissue.
- A good B Mode/2D image is important for a high-quality 3D/4D image.

Precautions - WIRELESS

- WIRELESS: The ZONARE Wireless option device is an RF Receiver and Transmitter, operating using industry standard 802.11 b/g protocols. Use of the wireless option, in the presence of other high energy RF radiating devices may interfere with the transmission of data to the network interfaces.
- WIRELESS: The ZONARE Wireless option device supports several industry standard security protocols and should be enabled to reduce the chance of patient data, transmitter over the wireless interface from the possible undesired interception of the data.
- WIRELESS: Data transmission and reception rates are limited to by the bandwidth of the user's network infrastructure. A Quality of Service (QOS) level is determined by the number of users on the network, the data being transferred by the users, distance of the ZONARE system to the wireless access point and other factors.

Electrical Safety

- ZONARE systems meet IEC 60601, Class I powered equipment requirements.
- The z.one$_{pro}$ ultrasound system complies with the applicable medical equipment requirements published in the European Norm (EN) and International Electronics Consortium (IEC) Harmonized Standards.
- The transducers, when used with the z.one$_{pro}$ system, are certified to be in compliance with IEC 60601 as Type BF or Type CF applied patient parts. Each transducer or port is labeled accordingly.

Contrast Imaging

Cardiac rhythm disturbances during perfusion studies using gas ultrasound contrast agents have been observed in the diagnostic range of MI values. See the *Instructions for Use* that came with contrast agent being used for details.

Medical Ultrasound Safety - General

Anyone using ZONARE ultrasound systems for human exams of any kind should thoroughly understand the implications of such use. The American Institute of Ultrasound in Medicine (AIUM) has published a document titled Medical Ultrasound Safety (AIUM 1994). ALARA is an abbreviation for the principle of prudent use of diagnostic ultrasound by obtaining the diagnostic information at a power output that is as low as reasonably achievable.
Diagnostic ultrasound is a technique-dependent imaging modality. To obtain the best possible patient care from any ultrasound equipment, the system must be operated by personnel trained in ultrasound image acquisition and interpretation. Users must become familiar with each of their imaging systems.

- Always make sure appropriate transducer is used for study being performed
- Always make sure active preset is appropriate for study being performed
- Know how to recognize acoustic artifacts in image
- Consult AIUM recommended protocols & equipment specifications.

11. Acoustic Output

This section describes acoustic-output-related parameters and considers the relation between these parameters and user controls on the ZONARE systems. The display accuracy and measurements precision of these parameters is also discussed.

Detailed information on acoustical power output for each transducer, in each operating modality, is in the dedicated tables provided in section 12.

Acoustical power output is dependent on both system control settings and the probe selected.

ALARA Principle

The prudent use of ultrasound requires a constant consideration of the risk-benefit ratio for the patient, along with employment of the ALARA principle. ALARA stands for as low as reasonably achievable. ALARA means that the sonographer uses only a much ultrasonic power for as long as needed to obtain the necessary clinical information. With training, education, and experience, the sonographer can systematically keep the patient risk for potential bioeffects of ultrasound to a minimum. ALARA is the guiding principle for the use of diagnostic ultrasound. Qualified sonographers, using good judgment and insight, determine the exposure that is as low as reasonably achievable. There are no rules to determine the correct response to every situation. The sonographer keeps exposure low, bioeffects minimal, and images diagnostic. A thorough knowledge of the imaging modes, probes, system, and scanning techniques for this system is necessary.

The acoustic output of the ZONARE ultrasound systems has been measured and calculated per the Acoustic Output Measurement Standard for Acoustic Output Measurement Standard for Diagnostic Ultrasound Equipment, Revision 3 (NEMA, UD 2) and the Standard for Real-Time Display of Thermal and Mechanical Acoustic Output Indices on Diagnostic Ultrasound Equipment, Revision 2 (NEMA UD3).

Applying ALARA

The scanner-imaging mode is selected by the sonographer and is determined by what information is required, For example, 2D imaging provides anatomical information.

Understanding the nature of the imaging mode being used allows a trained sonographer to apply the ALARA principle.

With training, education, and experience, the sonographer can systematically keep the patient risks for potential bioeffects of ultrasound down to a minimum. This means using ultrasound as an effective and often essential source of diagnostic information and not as a source of entertainment.

For information about ALARA and possible bioeffects, refer to the Medical Ultrasound Safety brochure developed by the American Institute of Ultrasound in Medicine (AIUM) and supplied with ZONARE ultrasound systems.

Direct Controls

Per 60601-2-37, the ultrasound system control acoustic output to not exceed a mechanical index (MI) level of 1.9, an $I_{SPTA.3}$ of 720 mW/cm^2 or a thermal index (TI) value of 6.0.

The systems' factory-set defaults, which are user adjustable, are such that when changing from one preset to another, one transducer to another, or a non-fetal to a fetal application, the system selects default MI & $I_{SPTA.3}$ values that are significantly lower than 60601-2-37, Medical Electrical Equipment Part 2-37: Particular Requirements for the Safety of Ultrasonic Medical Diagnostic and Monitoring Equipment and the United States Food and Drug Administration's Guidance Document, *"Information for Manufacturers Seeking Marketing Clearance of Diagnostic Ultrasound Systems and Transducers"* limits.

The thermal index that is displayed (TIS, TIB, TIC) is based on the selected application.
The system acoustic output display and controls follow the "*Standard for Real-Time Display of Thermal and Mechanical Acoustic Output Indices on Diagnostic Ultrasound Equipment, Revision 2*" (NEMA UD3).

Indirect Controls

The controls that indirectly affect output are controls affecting the imaging mode, optimization, probe selection, and depth. The imaging mode determines the nature of the ultrasound beam. Tissue attenuation is directly related to transducer frequency. The higher the pulse repetition frequency (PRF), the more output pulses occur over a period of time.

Receiver Controls

The receiver controls (such as **Gain**, **Dynamic Range**, etc.) do not affect acoustic output. Use the receiver controls to improve the image quality before using controls that directly or indirectly affect output.

General Controls

Transducer: Each ZONARE transducer has different physical characteristic and acoustic response to transmit voltages. Differences include size and shape, center frequency, piezo-electric efficiency, and focus properties of the lens. Changing from one transducer model to another will change the acoustic output and therefore the displayed mechanical index and thermal index values.

Mode: Changing from one mode to another will affect the acoustic output. Different modes use different transmit waveforms, focusing, duty cycles, and pulsing sequences. Doppler modes tend to have higher duty cycles, and therefore higher TI values, than B and M modes. Modes using the tightest focusing will tend to have higher MI values.

Defaults: Default settings exist and are accessed whenever a transducer and mode combination is selected. Although the acoustic output associated with these defaults may differ from combination to combination, the default acoustic output is lower than 60601-2-37, Medical Electrical Equipment Part 2-37: Particular Requirements for the Safety of Ultrasonic Medical Diagnostic and Monitoring Equipment and the United States Food and Drug Administration's Guidance Document, *"Information for Manufacturers Seeking Marketing Clearance of Diagnostic Ultrasound Systems and Transducers"* limits..

Transmit Power: Transmit power controls the transmit voltage, and therefore the amplitude of the transmitted ultrasonic waves. Both the TI and the MI will change when Transmit power (**A Output**) is adjusted.

Automatic ZONARE Limiting: For any adjustment described in the mode-specific section below, when a user adjustment of an ultrasound system control causes the MI, TI, or any other acoustic output or surface-temperature related parameter to reach a system control limit, the ZONARE system will automatically decrease the transmit voltage, causing a decrease in one or more of those parameters.

B-Mode Controls

Image Width: Narrowing the image width may increase the frame rate, which may increase the TI.

Depth: Decreasing the depth may increase the frame rate, which may increase the TI.

Operating Frequency: Changing the operating frequency will affect the displayed MI and TI values as the beam formation is affected and transducer efficiencies may differ between frequencies.

Frame Rate: A lower frame rate may decrease the TI; however, due to an increase in the Image Width, the TI stays roughly constant if the system's transmit pulse repetition stays constant.

Zoom: Increasing or decreasing the zoom may affect the frame rate, which may increase or decrease the TI.

Image Presets: Changing the image presets may indirectly change the acoustic line spacing or the frame rate, which could change the TI values. An increasing spacing may decrease the TI, and an increasing frame rate may increase the TI.

M-Mode Controls

Depth: Decreasing the depth may increase the frame rate, which may increase the TI.

Operating Frequency: Changing the operating frequency will affect the displayed MI and TI values as the beam formation is affected and transducer efficiencies may differ between frequencies.

Image Presets: Changing the image presets may indirectly change the acoustic line spacing or the frame rate, which could change the TI values. An increasing spacing may decrease the TI, and an increasing frame rate may increase the TI.

Color Doppler Controls

Image Width: Narrowing the image width may increase the frame rate, which may increase the TI.

Velocity Scale: Increasing the Velocity scale may increase the TI by increasing the pulse repetition frequency.

Color ROI Size and Position: A narrower Color Region Of Interest (ROI) may increase the frame rate, which may increase the TI. A longer Color ROI, or a deeper Color ROI, may decrease the pulse repetition frequency and decrease the TI.

Operating Frequency: Changing the operating frequency will affect both the displayed MI and TI values because the beam formation is affected and transducer efficiencies may differ between frequencies.

Combinational with B-Mode: Use of combination modes affects the TI and the MI through the combination of pulse types. Because the TI is additive, simultaneous pulsing of B and COLOR modes will cause larger TI values than sequential pulsing (e.g. auto-update). The displayed MI will be from the pulses with the largest peak pressure.

Image Presets: Changing the image presets may indirectly change the color sensitivity. Increasing the sensitivity could increase the TI values.

Color Doppler Triplex Controls

Image Width: Narrowing the image width may increase the frame rate, which may increase the TI.

Velocity Scale: Increasing the Velocity scale may increase the TI by increasing the pulse repetition frequency.

Color ROI Size and Position: A narrower Color Region of Interest (ROI) may increase the frame rate, which may increase the TI. A longer Color ROI, or a deeper Color ROI, may decrease the pulse repetition frequency and decrease TI.

PW Gate Size: A smaller PW Gate size may increase the allowable pulse repetition frequency and may increase TI.

PW Gate Position: A shallower PW Gate position may increase the allowable pulse repetition frequency and may increase the TI.

Operating Frequency: Changing the operating frequency will affect both the displayed MI and TI values because the beam formation is affected and transducer efficiencies may differ between frequencies.

Combinational with B, COLOR and PW: Use of combination modes affects the TI and MI through the combination of pulse types. Because the TI is additive, simultaneous pulsing of B, COLOR and PW modes may cause larger TI values than sequential pulsing (e.g. auto-update). The displayed MI will be from the pulses with the largest peak pressure.

Image Presets: Changing the image presets may indirectly change the PW and/or color sensitivity. Increasing the sensitivity could increase the TI values.

PW Doppler Controls

Velocity Scale: Increasing the Velocity scale may increase the TI by increasing the pulse repetition frequency.

PW Gate Size: A smaller PW Gate size may increase the allowable pulse repetition frequency which may increase TI.

PW Gate Position: A shallower PW Gate position may increase the allowable pulse repetition frequency and may increase TI.

Operating Frequency: Changing the operating frequency will affect both the displayed MI and TI values because the beam formation is affected and transducer efficiencies may differ between frequencies.

Combinational with B-Mode: Use of combination modes affects the TI and MI through the combination of pulse types. Because the TI is additive, simultaneous pulsing of B and PW modes may cause larger TI values than sequential pulsing (e.g. auto-update). The displayed MI will be from the pulses with the largest peak pressure.

Image Presets: Changing the image presets may indirectly change the PW sensitivity. Increasing the sensitivity could increase the TI values.

CW Doppler Controls

CW Gate Position: Changes in the CW Gate position may change the MI or TI.

Operating Frequency: Changing the operating frequency will affect both the displayed MI and TI values because the beam formation is affected and transducer efficiencies may differ between frequencies.

Image Presets: Changing the image presets may indirectly change the CW sensitivity. Increasing the sensitivity could change the TI values.

12. Transducers Performance

The information in the following tables describes the measured performance characteristics of each of the transducers currently supported on the z.one$_{pro}$ ultrasound system.

A2CW Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	N/A
Resolution (Axial)	N/A
Resolution (Lateral)	N/A
Ultrasound Frequency	2.0 MHz
Ultrasound Bandwidth	N/A
Highest Observed Surface Temp	37.5° C
Doppler Velocity Range in PW	N/A
Doppler Velocity Range in CW	+/- 1800 cm/s

A5CW Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	N/A
Resolution (Axial)	N/A
Resolution (Lateral)	N/A
Ultrasound Frequency	5.0 MHz
Ultrasound Bandwidth	N/A
Highest Observed Surface Temp	37.4° C
Doppler Velocity Range in PW	N/A
Doppler Velocity Range in CW	+/- 750 cm/s

C4-1 Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	30 cm
Resolution (Axial)	0.6 mm
Resolution (Lateral)	1.6 mm
Ultrasound Frequency	2.24 MHz
Ultrasound Bandwidth	0.686 MHz
Highest Observed Surface Temp	39.7° C
Doppler Velocity Range in PW	+/- 375 cm/s
Doppler Velocity Range in CW	+/- 2500 cm/s

C6-2 Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	24 cm
Resolution (Axial)	0.4 mm
Resolution (Lateral)	0.9 mm
Ultrasound Frequency	3.96 MHz
Ultrasound Bandwidth	1.42 MHz
Highest Observed Surface Temp	40.2° C
Doppler Velocity Range in PW	+/- 450 cm/s
Doppler Velocity Range in CW	N/A

C8-3 3D Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	24 cm
Resolution (Axial)	0.3 mm
Resolution (Lateral)	0.8 mm
Ultrasound Frequency	4.8 MHz
Ultrasound Bandwidth	3.6 MHz
Highest Observed Surface Temp	41.0° C
Doppler Velocity Range in PW	+/- 350 cm/s
Doppler Velocity Range in CW	N/A

C9-3 Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	18 cm
Resolution (Axial)	0.3 mm
Resolution (Lateral)	0.7 mm
Ultrasound Frequency	5.85 MHz
Ultrasound Bandwidth	2.31 MHz
Highest Observed Surface Temp	40.7° C
Doppler Velocity Range in PW	+/- 350 cm/s
Doppler Velocity Range in CW	N/A

C9-3sp Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	18 cm
Resolution (Axial)	0.3 mm
Resolution (Lateral)	0.7 mm
Ultrasound Frequency	5.65 MHz
Ultrasound Bandwidth	3.17 MHz
Highest Observed Surface Temp	40.9° C (external) 41.8° C (internal)
Doppler Velocity Range in PW	+/- 350 cm/s
Doppler Velocity Range in CW	N/A

C10-3 Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	13 cm
Resolution (Axial)	0.2 mm
Resolution (Lateral)	0.8 mm
Ultrasound Frequency	7.47 MHz
Ultrasound Bandwidth	2.68 MHz
Highest Observed Surface Temp	39.7° C
Doppler Velocity Range in PW	+/- 250 cm/s
Doppler Velocity Range in CW	+/- 1000 cm/s

E9-3 3D Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	12 cm
Resolution (Axial)	0.2mm
Resolution (Lateral)	0.9 mm
Ultrasound Frequency	6.49 MHz
Ultrasound Bandwidth	2.38 MHz
Highest Observed Surface Temp	40.7° C
Doppler Velocity Range in PW	+/- 250 cm/s
Doppler Velocity Range in CW	N/A

E9-3 Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	13 cm
Resolution (Axial)	0.2 mm
Resolution (Lateral)	0.7 mm
Ultrasound Frequency	7.81 MHz
Ultrasound Bandwidth	2.92 MHz
Highest Observed Surface Temp	39.3° C
Doppler Velocity Range in PW	+/- 200 cm/s
Doppler Velocity Range in CW	N/A

E9-4 Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	13 cm
Resolution (Axial)	0.3 mm
Resolution (Lateral)	0.8 mm
Ultrasound Frequency	6.775 MHz
Ultrasound Bandwidth	2.355 MHz
Highest Observed Surface Temp	41.0° C
Doppler Velocity Range in PW	+/- 200 cm/s
Doppler Velocity Range in CW	N/A

L8-3 Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	10 cm
Resolution (Axial)	0.2 mm
Resolution (Lateral)	0.5 mm
Ultrasound Frequency	6.33 MHz
Ultrasound Bandwidth	3.32 MHz
Highest Observed Surface Temp	40.6° C
Doppler Velocity Range in PW	+/- 700 cm/s
Doppler Velocity Range in CW	N/A

L10-5 Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	10 cm
Resolution (Axial)	0.2 mm
Resolution (Lateral)	0.4 mm
Ultrasound Frequency	6.48 MHz
Ultrasound Bandwidth	3.47 MHz
Highest Observed Surface Temp	39.8° C
Doppler Velocity Range in PW	+/- 325 cm/s
Doppler Velocity Range in CW	N/A

L20-5 Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	5 cm
Resolution (Axial)	0.1 mm
Resolution (Lateral)	0.1 mm
Ultrasound Frequency	13.2 MHz
Ultrasound Bandwidth	5.4 MHz
Highest Observed Surface Temp	40.5 ° C
Doppler Velocity Range in PW	+/- 225 cm/s
Doppler Velocity Range in CW	N/A

L14-5sp Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	6 cm
Resolution (Axial)	0.2 mm
Resolution (Lateral)	0.3 mm
Ultrasound Frequency	10.2 MHz
Ultrasound Bandwidth	3.54 MHz
Highest Observed Surface Temp	39.0° C (external) 40.0° C (internal)
Doppler Velocity Range in PW	+/- 600 cm/s
Doppler Velocity Range in CW	N/A

L14-5w Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	10 cm
Resolution (Axial)	0.1 mm
Resolution (Lateral)	0.3 mm
Ultrasound Frequency	8.0 MHz
Ultrasound Bandwidth	5.0 MHz
Highest Observed Surface Temp	39.5° C
Doppler Velocity Range in PW	+/- 300 cm/s
Doppler Velocity Range in CW	N/A

P4-1c Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	30 cm
Resolution (Axial)	0.4 mm
Resolution (Lateral)	2.4 mm
Ultrasound Frequency	3.19 MHz
Ultrasound Bandwidth	1.2 MHz
Highest Observed Surface Temp	40.9° C
Doppler Velocity Range in PW	+/- 450 cm/s
Doppler Velocity Range in CW	+/- 1450 cm/s

P8-3 TEE Transducer: Measured Results

Measured Item	Measured Result
Penetration Depth	1.3 cm
Resolution (Axial)	0.3 mm
Resolution (Lateral)	1.5 mm
Ultrasound Frequency	6.67 MHz
Ultrasound Bandwidth	2.60 MHz
Highest Observed Surface Temp	42.4° C
Doppler Velocity Range in PW	+/- 550 cm/s
Doppler Velocity Range in CW	+/- 960 cm/s

P9-3icTransducer: Measured Results

Measured Item	Measured Result
Penetration Depth	9.0 cm
Resolution (Axial)	0.3 mm
Resolution (Lateral)	0.8 mm
Ultrasound Frequency	6.49 MHz
Ultrasound Bandwidth	2.5 MHz
Highest Observed Surface Temp	40.5° C
Doppler Velocity Range in PW	+/- 180 cm/s
Doppler Velocity Range in CW	+/- 720 cm/s

13. Transducers: Acoustic Power Output

Acoustical power output varies among different models of probes. Specific acoustic power output values for each transducer, for each mode of operation, are provided in tables below. The defaults of each probe/mode combination will be set such that the acoustic output will be less than either 3 dB below the maximum acoustic output for the operating condition or 6 dB below FDA limits. 6 dB equates to 50% of the FDA limit for MI, and 25% of the limit for Ispta.3 and TI.

The tables on the following pages specify the Track 3 reporting values in each operating modality for each ZONARE transducer.

Ophthalmic Use

Under Track 3, acoustic output will not be evaluated on an application-specific basis, but the global maximum derated ISPTA should be = 720 mW/cm2, and either the global maximum MI should be = 1.9 or the global maximum derated ISPPA should be = 190 W/cm2. An exception is for ophthalmic use, in which case, the acoustic output is limited to the following values: ISPTA does not exceed 50 mW/cm2; TI does not exceed 1.0, and MI does not exceed 0.23. FDA considers a device with fixed acoustic output to be Track 1, unless Section 3.1.5 applies.

Acoustic Power Output Terms & Definitions

Term	Definition	Units
MI	Mechanical Index	--
TISscan	Soft Tissue Thermal Index in an auto-scanning mode	--
TISnon-scan	Soft Tissue Thermal Index in the non auto-scanning mode	--
TIB	Bone Thermal Index	--
TIC	Cranial Thermal Index	--
Aaprt	Area of the active aperture measured	cm^2
Pr.3	Derated peak rarefactional pressure	MPa
Wo	Ultrasonic power, except for TIScan. Wo with reference to TISscan is the ultrasonic power passing through the central 1cm length of the transducer with the highest linear power density.	mW
W.3(z1)	Derated ultrasonic power at axial distance z1.	mW
Ita.3(z1)	Derated spatial peak, temporal average intensity at axial distance z1	mW/cm^2
z1	Axial distance corresponding to the location of maximum [min (W.3 (z), Ita.3 (z) x 1 cm^2)], where z >= zbp	cm
zbp	$1.69\sqrt{Aaprt}$	cm
zsp	For MI, zsp is the axial distance at which pr.3 is measured. For TIB, zsp is the axial distance at which TIB is a maximum (zsp = zb.3).	cm
z@PII.3max	The axial distance corresponding to the maximum of the derated spatial-peak pulse intensity integral.	cm
deq(z)	Equivalent beam diameter as a function of axial distance z, and is equal to p[(4/p) (Wo/ITA(z))], where ITA(z) is the temporal average intensity as a function of z	cm
Fc	Center frequency	MHz
Dim. of Aaprt	Active aperture dimensions for the azimuthal (x) and elevational (y) planes	cm
PD	Pulse duration	・S
PRF	Pulse repetition frequency	Hz
$Pr@PII_{max}$	Peak rarefactional pressure at the point where the free-field, spatial peak pulse intensity integral is a maximum	MPa
FL	Focal length, or azimuthal (x) and elevational (y) lengths, if different	cm
deq@PIImax	Equivalent beam diameter at the point where the free-field, spatial peak pulse intensity integral is a maximum	cm
Ipa.3@MImax	Derated pulse average intensity at the selected operating condition of maximum MI	W/cm^2
SV	Doppler sample volume size	mm
MPa	MegaPascals	

Symbols used in the tables

Term	Definition
(c)	This formulation for TIS is less than that for an alternate formulation in this mode.
#	No data are reported for this operating condition since the global Maximum index value is not reported for the reason listed.

Acoustic Power Output Tables

The table below provides Track 3 reporting values for the specific operating modality for the specific ZONARE transducer.

A2CW CW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.07	-	-	0.56	2.70	1.32
Pr,a	[Mpa]	0.10					
P	[mW]		-	-		84.06	84.06
min of[Pa(Zs),Ita,a(Zs)	[mW]				60.49		
Zs	[cm]				2.43		
Zbp	[cm]				2.43		
Zb	[cm]	2.71				2.15	
z at max Ipi,a	[cm]	2.43					
deq(Zb)	[cm]					0.52	
fawf	[cm]	1.96	-	-	1.96	1.96	1.96
Dim of Aaprt X	[cm]		-	-	1.52	1.52	1.52
Dim of Aaprt Y	[cm]		-	-	1.30	1.30	1.30
TD	[usec]	4.97					
PRR	[Hz]	200000					
Pr at max Ipi	[Mpa]	0.11					
deq at max Ipi	[cm]					0.50	
FLx	[cm]		-	-	30.00		30.00
FLy	[cm]		-	-	7.50		7.50
Ipa,a at max MI	[W/cm2]	0.3					

A5CW CW		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.03	-	-	0.59	2.30	0.82
Pr,a	[Mpa]	0.08					
P	[mW]		-	-		29.30	29.30
min of[Pa(Zs),Ita,a(Zs)	[mW]				24.59		
Zs	[cm]				0.50		
Zbp	[cm]				0.50		
Zb	[cm]	1.88				0.78	
z at max Ipi,a	[cm]	1.88					
deq(Zb)	[cm]					0.31	
fawf	[cm]	5.08	-	-	5.08	5.08	5.08
Dim of Aaprt X	[cm]		-	-	0.49	0.49	0.49
Dim of Aaprt Y	[cm]		-	-	1.30	1.30	1.30
TD	[usec]	4.96					
PRR	[Hz]	200000					
Pr at max Ipi	[Mpa]	0.11					
deq at max Ipi	[cm]					0.30	
FLx	[cm]		-	-	30.00		30.00
FLy	[cm]		-	-	7.50		7.50
Ipa,a at max MI	[W/cm2]	0.2					

C4-1 B mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.56	0.46	-	-	-	1.14
Pr,a	[Mpa]	1.97					
P	[mW]		101.16	-		-	101.16
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	3.74				-	
z at max Ipi,a	[cm]	4.92					
deq(Zb)	[cm]					-	
fawf	[cm]	1.60	1.60	-	-	-	1.60
Dim of Aaprt X	[cm]		1.20	-	-	-	1.20
Dim of Aaprt Y	[cm]		1.50	-	-	-	1.50
TD	[usec]	1.23					
PRR	[Hz]	1849					
Pr at max Ipi	[Mpa]	2.09					
deq at max Ipi	[cm]					-	
FLx	[cm]		6.00	-	-		6.00
FLy	[cm]		8.00	-	-		8.00
Ipa,a at max MI	[W/cm2]	165.6					

C4-1 M Mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.56	0.11	-	-	0.86	0.72
Pr,a	[Mpa]	1.97					
P	[mW]		51.03	-		51.03	51.03
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	3.74				4.33	
z at max Ipi,a	[cm]	4.92					
deq(Zb)	[cm]					0.44	
fawf	[cm]	1.59	1.59-1.59	-	-	1.59	1.59-1.59
Dim of Aaprt X	[cm]		1.20	-	-	1.20	1.20
Dim of Aaprt Y	[cm]		1.50	-	-	1.50	1.50
TD	[usec]	1.22					
PRR	[Hz]	442					
Pr at max Ipi	[Mpa]	2.09					
deq at max Ipi	[cm]					0.41	
FLx	[cm]		6.00	-	-		6.00
FLy	[cm]		8.00	-	-		8.00
Ipa,a at max MI	[W/cm2]	163.9					

C4-1 CD		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.82	0.19	-	-	-	0.35
Pr,a	[Mpa]	1.04					
P	[mW]		30.02	-		-	30.02
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	4.04				-	
z at max Ipi,a	[cm]	4.63					
deq(Zb)	[cm]					-	
fawf	[cm]	1.60	1.60-2.27	-	-	-	1.60-2.27
Dim of Aaprt X	[cm]		1.60	-	-	-	1.60
Dim of Aaprt Y	[cm]		1.50	-	-	-	1.50
TD	[usec]	1.23					
PRR	[Hz]	630					
Pr at max Ipi	[Mpa]	1.25					
deq at max Ipi	[cm]					-	
FLx	[cm]		6.0-12.0	-	-		6.0-12.0
FLy	[cm]		8.00	-	-		8.00
Ipa,a at max MI	[W/cm2]	39.0					

C4-1 PW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.56	(c)	0.46	-	2.27	1.28
Pr,a	[Mpa]	1.97					
P	[mW]		#	101.16		63.30	63.30
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	3.74				2.27	
z at max Ipi,a	[cm]	4.92					
deq(Zb)	[cm]					0.43	
fawf	[cm]	1.60	#	1.60	-	2.51	2.51
Dim of Aaprt X	[cm]		#	1.20	-	0.80	0.80
Dim of Aaprt Y	[cm]		#	1.50	-	1.50	1.50
TD	[usec]	1.23					
PRR	[Hz]	1849					
Pr at max Ipi	[Mpa]	2.09					
deq at max Ipi	[cm]					0.42	
FLx	[cm]		#	6.00	-		3.00
FLy	[cm]		#	8.00	-		8.00
Ipa,a at max MI	[W/cm2]	165.6					

C4-1 CW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.10	-	-	0.26	4.07	0.70
Pr,a	[Mpa]	0.13					
P	[mW]		-	-		47.10	47.10
min of[Pa(Zs),Ita,a(Zs)	[mW]				37.34		
Zs	[cm]				2.27		
Zbp	[cm]				2.27		
Zb	[cm]	3.74				3.74	
z at max Ipi,a	[cm]	3.74					
deq(Zb)	[cm]					0.28	
fawf	[cm]	1.48	-	-	1.48	1.48	1.48
Dim of Aaprt X	[cm]		-	-	1.50	1.50	1.50
Dim of Aaprt Y	[cm]		-	-	1.50	1.50	1.50
TD	[usec]	10.00					
PRR	[Hz]	100000					
Pr at max Ipi	[Mpa]	0.15					
deq at max Ipi	[cm]					0.28	
FLx	[cm]		-	-	9.00		9.00
FLy	[cm]		-	-	8.00		8.00
Ipa,a at max MI	[W/cm2]	0.5					

C4-1 CDT		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.82	0.19	-	0.54	2.27	1.28
Pr,a	[Mpa]	1.04					
P	[mW]		30.02	-		63.30	63.30
min of[Pa(Zs),Ita,a(Zs)	[mW]				44.97		
Zs	[cm]				1.97		
Zbp	[cm]				1.97		
Zb	[cm]	4.04				2.27	
z at max Ipi,a	[cm]	4.63					
deq(Zb)	[cm]					0.43	
fawf	[cm]	1.60	1.60-2.27	-	2.51	2.51	2.51
Dim of Aaprt X	[cm]		1.60	-	0.80	0.80	0.80
Dim of Aaprt Y	[cm]		1.50	-	1.50	1.50	1.50
TD	[usec]	1.23					
PRR	[Hz]	630					
Pr at max Ipi	[Mpa]	1.25					
deq at max Ipi	[cm]					0.42	
FLx	[cm]		6.0-12.0	-	3.00		3.00
FLy	[cm]		8.00	-	8.00		8.00
Ipa,a at max MI	[W/cm2]	39.0					

C6-2 B mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.33	0.65	-	-	-	1.15
Pr,a	[Mpa]	2.00					
P	[mW]		97.46	-		-	97.46
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	3.74				-	
z at max Ipi,a	[cm]	4.63					
deq(Zb)	[cm]					-	
fawf	[cm]	2.26	2.26-3.38	-	-	-	2.26-3.38
Dim of Aaprt X	[cm]		1.08	-	-	-	1.08
Dim of Aaprt Y	[cm]		1.20	-	-	-	1.20
TD	[usec]	0.96					
PRR	[Hz]	882					
Pr at max Ipi	[Mpa]	2.51					
deq at max Ipi	[cm]					-	
FLx	[cm]		9.00	-	-		9.00
FLy	[cm]		7.00	-	-		7.00
Ipa,a at max MI	[W/cm2]	133.3					

C6-2 M mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.38	0.11	-	0.22	0.79	0.88
Pr,a	[Mpa]	1.99					
P	[mW]		55.42	-		55.42	55.42
min of[Pa(Zs),Ita,a(Zs)	[mW]				22.68		
Zs	[cm]				1.97		
Zbp	[cm]				1.97		
Zb	[cm]	3.74				4.33	
z at max Ipi,a	[cm]	4.63					
deq(Zb)	[cm]					0.46	
fawf	[cm]	2.08	2.08-2.08	-	2.08	2.08	2.08-2.08
Dim of Aaprt X	[cm]		1.08	-	1.08	1.08	1.08
Dim of Aaprt Y	[cm]		1.20	-	1.20	1.20	1.20
TD	[usec]	1.09					
PRR	[Hz]	403					
Pr at max Ipi	[Mpa]	2.30					
deq at max Ipi	[cm]					0.44	
FLx	[cm]		9.00	-	9.00		9.00
FLy	[cm]		7.00	-	7.00		7.00
Ipa,a at max MI	[W/cm2]	157.1					

C6-2 CD		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.33	0.45	-	-	-	0.74
Pr,a	[Mpa]	1.92					
P	[mW]		60.66	-		-	60.66
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	3.74				-	
z at max Ipi,a	[cm]	4.63					
deq(Zb)	[cm]					-	
fawf	[cm]	2.08	2.08-3.38	-	-	-	2.08-3.38
Dim of Aaprt X	[cm]		1.08	-	-	-	1.08
Dim of Aaprt Y	[cm]		1.20	-	-	-	1.20
TD	[usec]	1.08					
PRR	[Hz]	420					
Pr at max Ipi	[Mpa]	2.30					
deq at max Ipi	[cm]					-	
FLx	[cm]		9.0-12.0	-	-		9.0-12.0
FLy	[cm]		7.00	-	-		7.00
Ipa,a at max MI	[W/cm2]	145.6					

C6-2 PW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.33	(c)	-	1.23	3.02	2.34
Pr,a	[Mpa]	2.00					
P	[mW]		#	-		129.73	129.73
min of[Pa(Zs),Ita,a(Zs)	[mW]				86.12		
Zs	[cm]				1.97		
Zbp	[cm]				1.97		
Zb	[cm]	3.74				4.92	
z at max Ipi,a	[cm]	4.63					
deq(Zb)	[cm]					0.35	
fawf	[cm]	2.26	#	-	3.00	3.00	3.00
Dim of Aaprt X	[cm]		#	-	1.26	1.26	1.26
Dim of Aaprt Y	[cm]		#	-	1.20	1.20	1.20
TD	[usec]	0.96					
PRR	[Hz]	882					
Pr at max Ipi	[Mpa]	2.51					
deq at max Ipi	[cm]					0.32	
FLx	[cm]		#	-	5.00		5.00
FLy	[cm]		#	-	7.00		7.00
Ipa,a at max MI	[W/cm2]	133.3					

C6-2 CDT		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.33	0.45	-	1.23	3.02	2.34
Pr,a	[Mpa]	1.92					
P	[mW]		60.66	-		129.73	129.73
min of[Pa(Zs),Ita,a(Zs)	[mW]				86.12		
Zs	[cm]				1.97		
Zbp	[cm]				1.97		
Zb	[cm]	3.74				4.92	
z at max Ipi,a	[cm]	4.63					
deq(Zb)	[cm]					0.35	
fawf	[cm]	2.08	2.08-3.38	-	3.00	3.00	3.00
Dim of Aaprt X	[cm]		1.08	-	1.26	1.26	1.26
Dim of Aaprt Y	[cm]		1.20	-	1.20	1.20	1.20
TD	[usec]	1.08					
PRR	[Hz]	420					
Pr at max Ipi	[Mpa]	2.30					
deq at max Ipi	[cm]					0.32	
FLx	[cm]		9.0-12.0	-	5.00		5.00
FLy	[cm]		7.00	-	7.00		7.00
Ipa,a at max MI	[W/cm2]	145.6					

C8-3 3D B mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.49	0.51	-	-	-	1.11
Pr,a	[Mpa]	2.36					
P	[mW]		90.05	-		-	90.05
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.86				-	
z at max Ipi,a	[cm]	3.45					
deq(Zb)	[cm]					-	
fawf	[cm]	2.52	2.20-2.52	-	-	-	2.20-2.52
Dim of Aaprt X	[cm]		1.01	-	-	-	1.01
Dim of Aaprt Y	[cm]		1.10	-	-	-	1.10
TD	[usec]	1.04					
PRR	[Hz]	1515					
Pr at max Ipi	[Mpa]	2.89					
deq at max Ipi	[cm]					-	
FLx	[cm]		9.00	-	-		9.00
FLy	[cm]		5.00	-	-		5.00
Ipa,a at max MI	[W/cm2]	240.7					

C8-3 3D M mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.53	0.10	-	0.18	0.80	0.60
Pr,a	[Mpa]	2.42					
P	[mW]		35.41	-		35.41	35.41
min of[Pa(Zs),Ita,a(Zs)	[mW]				15.23		
Zs	[cm]				1.38		
Zbp	[cm]				1.38		
Zb	[cm]	2.56				3.15	
z at max Ipi,a	[cm]	3.45					
deq(Zb)	[cm]					0.32	
fawf	[cm]	2.51	2.51-2.51	-	2.51	2.51	2.51-2.51
Dim of Aaprt X	[cm]		1.01	-	1.01	1.01	1.01
Dim of Aaprt Y	[cm]		1.10	-	1.10	1.10	1.10
TD	[usec]	1.05					
PRR	[Hz]	480					
Pr at max Ipi	[Mpa]	3.03					
deq at max Ipi	[cm]					0.31	
FLx	[cm]		9.00	-	9.00		9.00
FLy	[cm]		5.00	-	5.00		5.00
Ipa,a at max MI	[W/cm2]	194.6					

C8-3 3D CD		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.26	0.49	-	-	-	0.82
Pr,a	[Mpa]	2.00					
P	[mW]		64.52	-		-	64.52
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.86				-	
z at max Ipi,a	[cm]	3.45					
deq(Zb)	[cm]					-	
fawf	[cm]	2.53	2.53-2.75	-	-	-	2.53-2.75
Dim of Aaprt X	[cm]		1.34	-	-	-	1.34
Dim of Aaprt Y	[cm]		1.10	-	-	-	1.10
TD	[usec]	1.01					
PRR	[Hz]	378					
Pr at max Ipi	[Mpa]	2.30					
deq at max Ipi	[cm]					-	
FLx	[cm]		9.0-24.0	-	-		9.0-24.0
FLy	[cm]		5.00	-	-		5.00
Ipa,a at max MI	[W/cm2]	148.2					

C8-3 3D PW		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.49	(c)	0.51	-	1.68	1.11
Pr,a	[Mpa]	2.36					
P	[mW]		#	90.05		32.24	90.05
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.86				3.15	
z at max Ipi,a	[cm]	3.45					
deq(Zb)	[cm]					0.23	
fawf	[cm]	2.52	#	2.20-2.52	-	2.98	2.20-2.52
Dim of Aaprt X	[cm]		#	1.01	-	1.01	1.01
Dim of Aaprt Y	[cm]		#	1.10	-	1.10	1.10
TD	[usec]	1.04					
PRR	[Hz]	1515					
Pr at max Ipi	[Mpa]	2.89					
deq at max Ipi	[cm]					0.22	
FLx	[cm]		#	9.00	-		9.00
FLy	[cm]		#	5.00	-		5.00
Ipa,a at max MI	[W/cm2]	240.7					

C8-3 3D CDT		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.26	0.49	-	-	1.68	0.82
Pr,a	[Mpa]	2.00					
P	[mW]		64.52	-		32.24	64.52
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.86				3.15	
z at max Ipi,a	[cm]	3.45					
deq(Zb)	[cm]					0.23	
fawf	[cm]	2.53	2.53-2.75	-	-	2.98	2.53-2.75
Dim of Aaprt X	[cm]		1.34	-	-	1.01	1.34
Dim of Aaprt Y	[cm]		1.10	-	-	1.10	1.10
TD	[usec]	1.01					
PRR	[Hz]	378					
Pr at max Ipi	[Mpa]	2.30					
deq at max Ipi	[cm]					0.22	
FLx	[cm]		9.0-24.0	-	-		9.0-24.0
FLy	[cm]		5.00	-	-		5.00
Ipa,a at max MI	[W/cm2]	148.2					

C9-3 B mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.86	0.84	-	-	-	1.33
Pr,a	[Mpa]	3.17					
P	[mW]		78.19	-		-	78.19
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.96				-	
z at max Ipi,a	[cm]	2.45					
deq(Zb)	[cm]					-	
fawf	[cm]	2.89	2.89-4.17	-	-	-	2.89-4.17
Dim of Aaprt X	[cm]		0.72	-	-	-	0.72
Dim of Aaprt Y	[cm]		0.80	-	-	-	0.80
TD	[usec]	0.69					
PRR	[Hz]	1929					
Pr at max Ipi	[Mpa]	3.39					
deq at max Ipi	[cm]					-	
FLx	[cm]		5.00	-	-		5.00
FLy	[cm]		4.50	-	-		4.50
Ipa,a at max MI	[W/cm2]	392.2					

C9-3 M mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.39	0.15	-	-	0.32	0.48
Pr,a	[Mpa]	2.83					
P	[mW]		16.57	-		16.57	16.57
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.21				2.69	
z at max Ipi,a	[cm]	2.69					
deq(Zb)	[cm]					0.29	
fawf	[cm]	4.15	4.15-4.15	-	-	4.15	4.15-4.15
Dim of Aaprt X	[cm]		0.72	-	-	0.72	0.72
Dim of Aaprt Y	[cm]		0.80	-	-	0.80	0.80
TD	[usec]	0.49					
PRR	[Hz]	403					
Pr at max Ipi	[Mpa]	3.47					
deq at max Ipi	[cm]					0.29	
FLx	[cm]		5.00	-	-		5.00
FLy	[cm]		4.50	-	-		4.50
Ipa,a at max MI	[W/cm2]	193.2					

C9-3 CD		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.16	0.98	-	-	-	1.02
Pr,a	[Mpa]	2.38					
P	[mW]		57.41	-		-	57.41
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.21				-	
z at max Ipi,a	[cm]	2.69					
deq(Zb)	[cm]					-	
fawf	[cm]	4.19	4.19-4.97	-	-	-	4.19-4.97
Dim of Aaprt X	[cm]		0.96	-	-	-	0.96
Dim of Aaprt Y	[cm]		0.80	-	-	-	0.80
TD	[usec]	0.48					
PRR	[Hz]	420					
Pr at max Ipi	[Mpa]	3.06					
deq at max Ipi	[cm]					-	
FLx	[cm]		5.0-18.0	-	-		5.0-18.0
FLy	[cm]		4.50	-	-		4.50
Ipa,a at max MI	[W/cm2]	133.1					

C9-3 PW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.86	(c)	0.84	-	1.99	1.33
Pr,a	[Mpa]	3.17					
P	[mW]		#	78.19		32.74	78.19
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.96				0.99	
z at max Ipi,a	[cm]	2.45					
deq(Zb)	[cm]					0.30	
fawf	[cm]	2.89	#	2.89-4.17	-	3.16	2.89-4.17
Dim of Aaprt X	[cm]		#	0.72	-	0.51	0.72
Dim of Aaprt Y	[cm]		#	0.80	-	0.80	0.80
TD	[usec]	0.69					
PRR	[Hz]	1929					
Pr at max Ipi	[Mpa]	3.39					
deq at max Ipi	[cm]					0.24	
FLx	[cm]		#	5.00	-		5.00
FLy	[cm]		#	4.50	-		4.50
Ipa,a at max MI	[W/cm2]	392.2					

C9-3 CDT		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.16	0.98	-	-	1.99	1.14
Pr,a	[Mpa]	2.38					
P	[mW]		57.41	-		32.74	32.74
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.21				0.99	
z at max Ipi,a	[cm]	2.69					
deq(Zb)	[cm]					0.30	
fawf	[cm]	4.19	4.19-4.97	-	-	3.16	3.16
Dim of Aaprt X	[cm]		0.96	-	-	0.51	0.51
Dim of Aaprt Y	[cm]		0.80	-	-	0.80	0.80
TD	[usec]	0.48					
PRR	[Hz]	420					
Pr at max Ipi	[Mpa]	3.06					
deq at max Ipi	[cm]					0.24	
FLx	[cm]		5.0-18.0	-	-		2.00
FLy	[cm]		4.50	-	-		4.50
Ipa,a at max MI	[W/cm2]	133.1					

C9-3sp B mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.43	0.48	-	-	-	0.98
Pr,a	[Mpa]	2.43					
P	[mW]		60.58	-		-	60.58
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.94				-	
z at max Ipi,a	[cm]	2.54					
deq(Zb)	[cm]					-	
fawf	[cm]	2.88	2.88	-	-	-	2.88
Dim of Aaprt X	[cm]		0.72	-	-	-	0.72
Dim of Aaprt Y	[cm]		0.80	-	-	-	0.80
TD	[usec]	0.69					
PRR	[Hz]	3964					
Pr at max Ipi	[Mpa]	2.88					
deq at max Ipi	[cm]					-	
FLx	[cm]		5.00	-	-		5.00
FLy	[cm]		4.50	-	-		4.50
Ipa,a at max MI	[W/cm2]	287.5					

C9-3sp M mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.40	0.12	-	-	0.90	0.67
Pr,a	[Mpa]	2.37					
P	[mW]		29.36	-		29.36	29.36
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.94				2.30	
z at max Ipi,a	[cm]	2.54					
deq(Zb)	[cm]					0.23	
fawf	[cm]	2.88	2.88-2.88	-	-	2.88	2.88-2.88
Dim of Aaprt X	[cm]		0.72	-	-	0.72	0.72
Dim of Aaprt Y	[cm]		0.80	-	-	0.80	0.80
TD	[usec]	0.69					
PRR	[Hz]	960					
Pr at max Ipi	[Mpa]	2.75					
deq at max Ipi	[cm]					0.22	
FLx	[cm]		5.00	-	-		5.00
FLy	[cm]		4.50	-	-		4.50
Ipa,a at max MI	[W/cm2]	275.1					

C9-3sp CD		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.27	0.45	-	-	-	0.58
Pr,a	[Mpa]	2.16					
P	[mW]		32.62	-		-	32.62
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.18				-	
z at max Ipi,a	[cm]	2.54					
deq(Zb)	[cm]					-	
fawf	[cm]	2.89	2.89-4.20	-	-	-	2.89-4.20
Dim of Aaprt X	[cm]		0.96	-	-	-	0.96
Dim of Aaprt Y	[cm]		0.80	-	-	-	0.80
TD	[usec]	0.67					
PRR	[Hz]	420					
Pr at max Ipi	[Mpa]	2.42					
deq at max Ipi	[cm]					-	
FLx	[cm]		5.0-18.0	-	-		5.0-18.0
FLy	[cm]		4.50	-	-		4.50
Ipa,a at max MI	[W/cm2]	249.0					

C9-3sp PW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.43	(c)	0.48	-	1.60	0.98
Pr,a	[Mpa]	2.43					
P	[mW]		#	60.58		26.65	60.58
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.94				2.78	
z at max Ipi,a	[cm]	2.54					
deq(Zb)	[cm]					0.21	
fawf	[cm]	2.88	#	2.88	-	3.15	2.88
Dim of Aaprt X	[cm]		#	0.72	-	1.02	0.72
Dim of Aaprt Y	[cm]		#	0.80	-	0.80	0.80
TD	[usec]	0.69					
PRR	[Hz]	3964					
Pr at max Ipi	[Mpa]	2.88					
deq at max Ipi	[cm]					0.20	
FLx	[cm]		#	5.00	-		5.00
FLy	[cm]		#	4.50	-		4.50
Ipa,a at max MI	[W/cm2]	287.5					

C9-3sp CDT		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.27	0.45	-	-	1.60	0.65
Pr,a	[Mpa]	2.16					
P	[mW]		32.62	-		26.65	26.65
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.18				2.78	
z at max Ipi,a	[cm]	2.54					
deq(Zb)	[cm]					0.21	
fawf	[cm]	2.89	2.89-4.20	-	-	3.15	3.15
Dim of Aaprt X	[cm]		0.96	-	-	1.02	1.02
Dim of Aaprt Y	[cm]		0.80	-	-	0.80	0.80
TD	[usec]	0.67					
PRR	[Hz]	420					
Pr at max Ipi	[Mpa]	2.42					
deq at max Ipi	[cm]					0.20	
FLx	[cm]		5.0-18.0	-	-		4.00
FLy	[cm]		4.50	-	-		4.50
Ipa,a at max MI	[W/cm2]	249.0					

C10-3 B mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.58	0.71	-	-	-	0.64
Pr,a	[Mpa]	3.05					
P	[mW]		26.56	-		-	26.56
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.50				-	
z at max Ipi,a	[cm]	1.83					
deq(Zb)	[cm]					-	
fawf	[cm]	3.75	6.14	-	-	-	6.14
Dim of Aaprt X	[cm]		0.77	-	-	-	0.77
Dim of Aaprt Y	[cm]		0.60	-	-	-	0.60
TD	[usec]	0.58					
PRR	[Hz]	783					
Pr at max Ipi	[Mpa]	3.57					
deq at max Ipi	[cm]					-	
FLx	[cm]		5.00	-	-		5.00
FLy	[cm]		3.50	-	-		3.50
Ipa,a at max MI	[W/cm2]	390.9					

C10-3 M mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.54	0.10	0.23	-	0.44	0.37
Pr,a	[Mpa]	3.06					
P	[mW]		12.70	12.70		12.70	12.70
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.50				1.67	
z at max Ipi,a	[cm]	1.83					
deq(Zb)	[cm]					0.22	
fawf	[cm]	3.96	3.96-3.96	3.96-3.96	-	3.96	3.96-3.96
Dim of Aaprt X	[cm]		0.77	0.77	-	0.77	0.77
Dim of Aaprt Y	[cm]		0.60	0.60	-	0.60	0.60
TD	[usec]	0.42					
PRR	[Hz]	480					
Pr at max Ipi	[Mpa]	3.89					
deq at max Ipi	[cm]					0.21	
FLx	[cm]		5.00	5.00	-		5.00
FLy	[cm]		3.50	3.50	-		3.50
Ipa,a at max MI	[W/cm2]	505.5					

C10-3 CD		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.52	0.74	-	-	-	0.79
Pr,a	[Mpa]	3.03					
P	[mW]		27.89	-		-	27.89
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.83				-	
z at max Ipi,a	[cm]	1.83					
deq(Zb)	[cm]					-	
fawf	[cm]	3.96	3.96-6.06	-	-	-	3.96-6.06
Dim of Aaprt X	[cm]		0.77	-	-	-	0.77
Dim of Aaprt Y	[cm]		0.60	-	-	-	0.60
TD	[usec]	0.40					
PRR	[Hz]	420					
Pr at max Ipi	[Mpa]	3.76					
deq at max Ipi	[cm]					-	
FLx	[cm]		5.00	-	-		5.00
FLy	[cm]		3.50	-	-		3.50
Ipa,a at max MI	[W/cm2]	576.4					

C10-3 PW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.58	(c)	0.71	-	1.14	0.64
Pr,a	[Mpa]	3.05					
P	[mW]		#	26.56		16.22	26.56
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.50				2.17	
z at max Ipi,a	[cm]	1.83					
deq(Zb)	[cm]					0.19	
fawf	[cm]	3.75	#	6.14	-	3.63	6.14
Dim of Aaprt X	[cm]		#	0.77	-	1.01	0.77
Dim of Aaprt Y	[cm]		#	0.60	-	0.60	0.60
TD	[usec]	0.58					
PRR	[Hz]	783					
Pr at max Ipi	[Mpa]	3.57					
deq at max Ipi	[cm]					0.17	
FLx	[cm]		#	5.00	-		5.00
FLy	[cm]		#	3.50	-		3.50
Ipa,a at max MI	[W/cm2]	390.9					

C10-3 CW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.07	-	-	0.87	1.74	0.76
Pr,a	[Mpa]	0.13					
P	[mW]		-	-		22.41	22.41
min of[Pa(Zs),Ita,a(Zs)	[mW]				51.13		
Zs	[cm]				1.67		
Zbp	[cm]				0.50		
Zb	[cm]	2.00				1.67	
z at max Ipi,a	[cm]	1.67					
deq(Zb)	[cm]					1.92	
fawf	[cm]	3.59	-	-	3.59	3.59	3.59
Dim of Aaprt X	[cm]		-	-	0.72	0.72	0.72
Dim of Aaprt Y	[cm]		-	-	0.60	0.60	0.60
TD	[usec]	5.02					
PRR	[Hz]	200000					
Pr at max Ipi	[Mpa]	0.17					
deq at max Ipi	[cm]					1.89	
FLx	[cm]		-	-	5.00		5.00
FLy	[cm]		-	-	3.50		3.50
Ipa,a at max MI	[W/cm2]	0.5					

C10-3 CDT		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.52	0.74	-	-	1.14	0.79
Pr,a	[Mpa]	3.03					
P	[mW]		27.89	-		16.22	27.89
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.83				2.17	
z at max Ipi,a	[cm]	1.83					
deq(Zb)	[cm]					0.19	
fawf	[cm]	3.96	3.96-6.06	-	-	3.63	3.96-6.06
Dim of Aaprt X	[cm]		0.77	-	-	1.01	0.77
Dim of Aaprt Y	[cm]		0.60	-	-	0.60	0.60
TD	[usec]	0.40					
PRR	[Hz]	420					
Pr at max Ipi	[Mpa]	3.76					
deq at max Ipi	[cm]					0.17	
FLx	[cm]		5.00	-	-		5.00
FLy	[cm]		3.50	-	-		3.50
Ipa,a at max MI	[W/cm2]	576.4					

C10-3 ocular B mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.14	0.01	-	-	-	0.01
Pr,a	[Mpa]	0.37					
P	[mW]		0.38	-		-	0.38
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.67				-	
z at max Ipi,a	[cm]	1.67					
deq(Zb)	[cm]					-	
fawf	[cm]	6.58	6.58	-	-	-	6.58
Dim of Aaprt X	[cm]		0.38	-	-	-	0.38
Dim of Aaprt Y	[cm]		0.60	-	-	-	0.60
TD	[usec]	0.28					
PRR	[Hz]	5192					
Pr at max Ipi	[Mpa]	0.54					
deq at max Ipi	[cm]					-	
FLx	[cm]		2.00	-	-		2.00
FLy	[cm]		3.50	-	-		3.50
Ipa,a at max MI	[W/cm2]	4.0					

C10-3 ocular M mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.15	0.00	-	-	0.00	0.00
Pr,a	[Mpa]	0.38					
P	[mW]		0.05	-		0.05	0.05
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.67				1.67	
z at max Ipi,a	[cm]	1.67					
deq(Zb)	[cm]					0.14	
fawf	[cm]	6.57	6.57-6.59	-	-	6.59	6.57-6.59
Dim of Aaprt X	[cm]		0.38	-	-	0.38	0.38
Dim of Aaprt Y	[cm]		0.60	-	-	0.60	0.60
TD	[usec]	0.28					
PRR	[Hz]	480					
Pr at max Ipi	[Mpa]	0.56					
deq at max Ipi	[cm]					0.14	
FLx	[cm]		2.00	-	-		2.00
FLy	[cm]		3.50	-	-		3.50
Ipa,a at max MI	[W/cm2]	4.3					

C10-3 ocular CD		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.13	0.00	-	-	-	0.00
Pr,a	[Mpa]	0.34					
P	[mW]		0.04	-		-	0.04
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.67				-	
z at max Ipi,a	[cm]	1.67					
deq(Zb)	[cm]					-	
fawf	[cm]	6.58	6.58-6.76	-	-	-	6.58-6.76
Dim of Aaprt X	[cm]		0.38	-	-	-	0.38
Dim of Aaprt Y	[cm]		0.60	-	-	-	0.60
TD	[usec]	0.28					
PRR	[Hz]	375					
Pr at max Ipi	[Mpa]	0.50					
deq at max Ipi	[cm]					-	
FLx	[cm]		2.00	-	-		2.00
FLy	[cm]		3.50	-	-		3.50
Ipa,a at max MI	[W/cm2]	3.4					

C10-3 ocular PW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.14	(c)	0.01	-	0.02	0.01
Pr,a	[Mpa]	0.37					
P	[mW]		#	0.38		0.23	0.38
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.67				2.00	
z at max Ipi,a	[cm]	1.67					
deq(Zb)	[cm]					0.13	
fawf	[cm]	6.58	#	6.58	-	5.16	6.58
Dim of Aaprt X	[cm]		#	0.38	-	0.79	0.38
Dim of Aaprt Y	[cm]		#	0.60	-	0.60	0.60
TD	[usec]	0.28					
PRR	[Hz]	5192					
Pr at max Ipi	[Mpa]	0.54					
deq at max Ipi	[cm]					0.11	
FLx	[cm]		#	2.00	-		2.00
FLy	[cm]		#	3.50	-		3.50
Ipa,a at max MI	[W/cm2]	4.0					

C10-3 ocular CDT		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.13	0.00	-	-	0.02	0.01
Pr,a	[Mpa]	0.34					
P	[mW]		0.04	-		0.23	0.23
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.67				2.00	
z at max Ipi,a	[cm]	1.67					
deq(Zb)	[cm]					0.13	
fawf	[cm]	6.58	6.58-6.76	-	-	5.16	5.16
Dim of Aaprt X	[cm]		0.38	-	-	0.79	0.79
Dim of Aaprt Y	[cm]		0.60	-	-	0.60	0.60
TD	[usec]	0.28					
PRR	[Hz]	375					
Pr at max Ipi	[Mpa]	0.50					
deq at max Ipi	[cm]					0.11	
FLx	[cm]		2.00	-	-		5.00
FLy	[cm]		3.50	-	-		3.50
Ipa,a at max MI	[W/cm2]	3.4					

E9-3 B mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.47	0.35	-	-	-	0.33
Pr,a	[Mpa]	3.04					
P	[mW]		12.39	-		-	12.39
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.33				-	
z at max Ipi,a	[cm]	1.50					
deq(Zb)	[cm]					-	
fawf	[cm]	4.28	6.35-6.94	-	-	-	6.35-6.94
Dim of Aaprt X	[cm]		0.53	-	-	-	0.53
Dim of Aaprt Y	[cm]		0.50	-	-	-	0.50
TD	[usec]	0.47					
PRR	[Hz]	1321					
Pr at max Ipi	[Mpa]	3.50					
deq at max Ipi	[cm]					-	
FLx	[cm]		3.50	-	-		3.50
FLy	[cm]		3.00	-	-		3.00
Ipa,a at max MI	[W/cm2]	364.3					

E9-3 M mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.51	0.11	-	-	0.32	0.32
Pr,a	[Mpa]	3.12					
P	[mW]		9.82	-		9.82	9.82
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.33				1.50	
z at max Ipi,a	[cm]	1.50					
deq(Zb)	[cm]					0.18	
fawf	[cm]	4.29	4.29-4.30	-	-	4.29	4.29-4.30
Dim of Aaprt X	[cm]		0.53	-	-	0.53	0.53
Dim of Aaprt Y	[cm]		0.50	-	-	0.50	0.50
TD	[usec]	0.46					
PRR	[Hz]	480					
Pr at max Ipi	[Mpa]	3.60					
deq at max Ipi	[cm]					0.18	
FLx	[cm]		3.50	-	-		3.50
FLy	[cm]		3.00	-	-		3.00
Ipa,a at max MI	[W/cm2]	406.5					

E9-3 CD		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.80	0.08	-	-	-	0.09
Pr,a	[Mpa]	1.67					
P	[mW]		3.43	-		-	3.43
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.33				-	
z at max Ipi,a	[cm]	1.67					
deq(Zb)	[cm]					-	
fawf	[cm]	4.38	4.38-5.54	-	-	-	4.38-5.54
Dim of Aaprt X	[cm]		0.70	-	-	-	0.70
Dim of Aaprt Y	[cm]		0.50	-	-	-	0.50
TD	[usec]	0.45					
PRR	[Hz]	540					
Pr at max Ipi	[Mpa]	1.92					
deq at max Ipi	[cm]					-	
FLx	[cm]		3.5-7.0	-	-		3.5-7.0
FLy	[cm]		3.00	-	-		3.00
Ipa,a at max MI	[W/cm2]	95.6					

E9-3 PW		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.47	(c)	0.35	-	0.99	0.44
Pr,a	[Mpa]	3.04					
P	[mW]		#	12.39		8.67	13.26
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.33				1.33	
z at max Ipi,a	[cm]	1.50					
deq(Zb)	[cm]					0.14	
fawf	[cm]	4.28	#	6.35-6.94	-	4.53	4.53
Dim of Aaprt X	[cm]		#	0.53	-	0.51	0.88
Dim of Aaprt Y	[cm]		#	0.50	-	0.50	0.50
TD	[usec]	0.47					
PRR	[Hz]	1321					
Pr at max Ipi	[Mpa]	3.50					
deq at max Ipi	[cm]					0.14	
FLx	[cm]		#	3.50	-		4.00
FLy	[cm]		#	3.00	-		3.00
Ipa,a at max MI	[W/cm2]	364.3					

E9-3 CDT		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.80	0.08	0.29	-	0.99	0.44
Pr,a	[Mpa]	1.67					
P	[mW]		3.43	13.26		8.67	13.26
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.33				1.33	
z at max Ipi,a	[cm]	1.67					
deq(Zb)	[cm]					0.14	
fawf	[cm]	4.38	4.38-5.54	4.53	-	4.53	4.53
Dim of Aaprt X	[cm]		0.70	0.88	-	0.51	0.88
Dim of Aaprt Y	[cm]		0.50	0.50	-	0.50	0.50
TD	[usec]	0.45					
PRR	[Hz]	540					
Pr at max Ipi	[Mpa]	1.92					
deq at max Ipi	[cm]					0.14	
FLx	[cm]		3.5-7.0	4.00	-		4.00
FLy	[cm]		3.00	3.00	-		3.00
Ipa,a at max MI	[W/cm2]	95.6					

E9-3 3D B mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.27	0.37	-	-	-	0.41
Pr,a	[Mpa]	2.83					
P	[mW]		19.35	-		-	19.35
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.85				-	
z at max Ipi,a	[cm]	2.23					
deq(Zb)	[cm]					-	
fawf	[cm]	4.94	4.94	-	-	-	4.94
Dim of Aaprt X	[cm]		0.76	-	-	-	0.76
Dim of Aaprt Y	[cm]		0.65	-	-	-	0.65
TD	[usec]	0.37					
PRR	[Hz]	1620					
Pr at max Ipi	[Mpa]	3.55					
deq at max Ipi	[cm]					-	
FLx	[cm]		4.00	-	-		4.00
FLy	[cm]		3.75	-	-		3.75
Ipa,a at max MI	[W/cm2]	243.5					

E9-3 3D M Mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.71	0.23	-	-	0.12	0.32
Pr,a	[Mpa]	1.60					
P	[mW]		14.09	-		14.09	14.09
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.23				2.42	
z at max Ipi,a	[cm]	2.62					
deq(Zb)	[cm]					0.18	
fawf	[cm]	5.10	5.10-5.15	-	-	5.15	5.10-5.15
Dim of Aaprt X	[cm]		0.76	-	-	0.76	0.76
Dim of Aaprt Y	[cm]		0.65	-	-	0.65	0.65
TD	[usec]	0.33					
PRR	[Hz]	5185					
Pr at max Ipi	[Mpa]	2.20					
deq at max Ipi	[cm]					0.17	
FLx	[cm]		4.00	-	-		4.00
FLy	[cm]		3.75	-	-		3.75
Ipa,a at max MI	[W/cm2]	115.8					

E9-3 3D CD		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.79	0.13	-	-	-	0.14
Pr,a	[Mpa]	1.78					
P	[mW]		5.91	-		-	5.91
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.04				-	
z at max Ipi,a	[cm]	2.42					
deq(Zb)	[cm]					-	
fawf	[cm]	5.03	5.00-5.03	-	-	-	5.00-5.03
Dim of Aaprt X	[cm]		0.76	-	-	-	0.76
Dim of Aaprt Y	[cm]		0.65	-	-	-	0.65
TD	[usec]	0.74					
PRR	[Hz]	2210					
Pr at max Ipi	[Mpa]	2.32					
deq at max Ipi	[cm]					-	
FLx	[cm]		4.00	-	-		4.00
FLy	[cm]		3.75	-	-		3.75
Ipa,a at max MI	[W/cm2]	105.8					

E9-3 3D PW		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.27	(c)	0.37	-	0.88	0.45
Pr,a	[Mpa]	2.83					
P	[mW]		#	19.35		11.84	11.84
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.85				1.65	
z at max Ipi,a	[cm]	2.23					
deq(Zb)	[cm]					0.19	
fawf	[cm]	4.94	#	4.94	-	4.21	4.21
Dim of Aaprt X	[cm]		#	0.76	-	0.51	0.51
Dim of Aaprt Y	[cm]		#	0.65	-	0.65	0.65
TD	[usec]	0.37					
PRR	[Hz]	1620					
Pr at max Ipi	[Mpa]	3.55					
deq at max Ipi	[cm]					0.18	
FLx	[cm]		#	4.00	-		2.00
FLy	[cm]		#	3.75	-		3.75
Ipa,a at max MI	[W/cm2]	243.5					

E9-3 3D CDT		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.79	0.13	0.24	-	0.88	0.45
Pr,a	[Mpa]	1.78					
P	[mW]		5.91	11.84		11.84	11.84
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.04				1.65	
z at max Ipi,a	[cm]	2.42					
deq(Zb)	[cm]					0.19	
fawf	[cm]	5.03	5.00-5.03	4.21	-	4.21	4.21
Dim of Aaprt X	[cm]		0.76	0.51	-	0.51	0.51
Dim of Aaprt Y	[cm]		0.65	0.65	-	0.65	0.65
TD	[usec]	0.74					
PRR	[Hz]	2210					
Pr at max Ipi	[Mpa]	2.32					
deq at max Ipi	[cm]					0.18	
FLx	[cm]		4.00	2.00	-		2.00
FLy	[cm]		3.75	3.75	-		3.75
Ipa,a at max MI	[W/cm2]	105.8					

E9-4 B mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.24	0.40	-	-	-	0.46
Pr,a	[Mpa]	2.72					
P	[mW]		19.09	-		-	19.09
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.50				-	
z at max Ipi,a	[cm]	1.83					
deq(Zb)	[cm]					-	
fawf	[cm]	4.83	4.83	-	-	-	4.83
Dim of Aaprt X	[cm]		0.50	-	-	-	0.50
Dim of Aaprt Y	[cm]		0.60	-	-	-	0.60
TD	[usec]	0.33					
PRR	[Hz]	4588					
Pr at max Ipi	[Mpa]	3.17					
deq at max Ipi	[cm]					-	
FLx	[cm]		3.50	-	-		3.50
FLy	[cm]		3.50	-	-		3.50
Ipa,a at max MI	[W/cm2]	284.7					

E9-4 M Mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.22	0.07	0.12	-	0.15	0.21
Pr,a	[Mpa]	2.67					
P	[mW]		5.17	5.17		5.17	5.17
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.50				1.67	
z at max Ipi,a	[cm]	1.83					
deq(Zb)	[cm]					0.17	
fawf	[cm]	4.81	4.81-4.83	4.81-4.83	-	4.83	4.81-4.83
Dim of Aaprt X	[cm]		0.50	0.50	-	0.50	0.50
Dim of Aaprt Y	[cm]		0.60	0.60	-	0.60	0.60
TD	[usec]	0.34					
PRR	[Hz]	762					
Pr at max Ipi	[Mpa]	3.30					
deq at max Ipi	[cm]					0.16	
FLx	[cm]		3.50	3.50	-		3.50
FLy	[cm]		3.50	3.50	-		3.50
Ipa,a at max MI	[W/cm2]	274.9					

E9-4 CD		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.36	0.21	-	-	-	0.23
Pr,a	[Mpa]	3.01					
P	[mW]		9.38	-		-	9.38
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.50				-	
z at max Ipi,a	[cm]	1.83					
deq(Zb)	[cm]					-	
fawf	[cm]	4.88	4.88-5.33	-	-	-	4.88-5.33
Dim of Aaprt X	[cm]		0.67	-	-	-	0.67
Dim of Aaprt Y	[cm]		0.60	-	-	-	0.60
TD	[usec]	0.32					
PRR	[Hz]	460					
Pr at max Ipi	[Mpa]	3.88					
deq at max Ipi	[cm]					-	
FLx	[cm]		3.5-7.0	-	-		3.5-7.0
FLy	[cm]		3.50	-	-		3.50
Ipa,a at max MI	[W/cm2]	367.8					

E9-4 PW		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.24	(c)	0.44	-	1.32	0.63
Pr,a	[Mpa]	2.72					
P	[mW]		#	20.53		20.53	20.53
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.50				2.50	
z at max Ipi,a	[cm]	1.83					
deq(Zb)	[cm]					0.16	
fawf	[cm]	4.83	#	4.52	-	4.52	4.52
Dim of Aaprt X	[cm]		#	0.88	-	0.88	0.88
Dim of Aaprt Y	[cm]		#	0.60	-	0.60	0.60
TD	[usec]	0.33					
PRR	[Hz]	4588					
Pr at max Ipi	[Mpa]	3.17					
deq at max Ipi	[cm]					0.16	
FLx	[cm]		#	4.00	-		4.00
FLy	[cm]		#	3.50	-		3.50
Ipa,a at max MI	[W/cm2]	284.7					

E9-4 CDT		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.36	0.21	-	-	1.32	0.63
Pr,a	[Mpa]	3.01					
P	[mW]		9.38	-		20.53	20.53
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.50				2.50	
z at max Ipi,a	[cm]	1.83					
deq(Zb)	[cm]					0.16	
fawf	[cm]	4.88	4.88-5.33	-	-	4.52	4.52
Dim of Aaprt X	[cm]		0.67	-	-	0.88	0.88
Dim of Aaprt Y	[cm]		0.60	-	-	0.60	0.60
TD	[usec]	0.32					
PRR	[Hz]	460					
Pr at max Ipi	[Mpa]	3.88					
deq at max Ipi	[cm]					0.16	
FLx	[cm]		3.5-7.0	-	-		4.00
FLy	[cm]		3.50	-	-		3.50
Ipa,a at max MI	[W/cm2]	367.8					

L8-3 B mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.50	0.45	-	-	-	0.70
Pr,a	[Mpa]	2.98					
P	[mW]		34.71	-		-	34.71
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.77				-	
z at max Ipi,a	[cm]	1.91					
deq(Zb)	[cm]					-	
fawf	[cm]	3.93	3.93	-	-	-	3.93
Dim of Aaprt X	[cm]		0.72	-	-	-	0.72
Dim of Aaprt Y	[cm]		0.60	-	-	-	0.60
TD	[usec]	0.50					
PRR	[Hz]	5974					
Pr at max Ipi	[Mpa]	3.48					
deq at max Ipi	[cm]					-	
FLx	[cm]		2.80	-	-		2.80
FLy	[cm]		2.50	-	-		2.50
Ipa,a at max MI	[W/cm2]	375.4					

L8-3 M mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.50	0.07	0.17	-	0.51	0.29
Pr,a	[Mpa]	2.97					
P	[mW]		10.67	10.67		10.67	10.67
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.77				2.05	
z at max Ipi,a	[cm]	2.05					
deq(Zb)	[cm]					0.14	
fawf	[cm]	3.93	3.93-3.94	3.93-3.94	-	3.94	3.93-3.94
Dim of Aaprt X	[cm]		0.72	0.72	-	0.72	0.72
Dim of Aaprt Y	[cm]		0.60	0.60	-	0.60	0.60
TD	[usec]	0.50					
PRR	[Hz]	883					
Pr at max Ipi	[Mpa]	3.48					
deq at max Ipi	[cm]					0.14	
FLx	[cm]		2.80	2.80	-		2.80
FLy	[cm]		2.50	2.50	-		2.50
Ipa,a at max MI	[W/cm2]	364.0					

L8-3 CD mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.53	0.63	-	-	-	0.83
Pr,a	[Mpa]	3.26					
P	[mW]		37.85	-		-	37.85
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.77				-	
z at max Ipi,a	[cm]	2.19					
deq(Zb)	[cm]					-	
fawf	[cm]	4.50	3.99-4.50	-	-	-	3.99-4.50
Dim of Aaprt X	[cm]		0.72	-	-	-	0.72
Dim of Aaprt Y	[cm]		0.60	-	-	-	0.60
TD	[usec]	0.63					
PRR	[Hz]	1755					
Pr at max Ipi	[Mpa]	3.98					
deq at max Ipi	[cm]					-	
FLx	[cm]		2.8-4.0	-	-		2.8-4.0
FLy	[cm]		2.50	-	-		2.50
Ipa,a at max MI	[W/cm2]	377.0					

L8-3 PW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.50	(c)	0.45	-	1.02	0.70
Pr,a	[Mpa]	2.98					
P	[mW]		#	34.71		9.99	34.71
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.77				1.91	
z at max Ipi,a	[cm]	1.91					
deq(Zb)	[cm]					0.14	
fawf	[cm]	3.93	#	3.93	-	3.56	3.93
Dim of Aaprt X	[cm]		#	0.72	-	0.75	0.72
Dim of Aaprt Y	[cm]		#	0.60	-	0.60	0.60
TD	[usec]	0.50					
PRR	[Hz]	5974					
Pr at max Ipi	[Mpa]	3.48					
deq at max Ipi	[cm]					0.15	
FLx	[cm]		#	2.80	-		2.80
FLy	[cm]		#	2.50	-		2.50
Ipa,a at max MI	[W/cm2]	375.4					

L8-3 CDT		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.53	0.63	-	-	1.02	0.83
Pr,a	[Mpa]	3.26					
P	[mW]		37.85	-		9.99	37.85
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.77				1.91	
z at max Ipi,a	[cm]	2.19					
deq(Zb)	[cm]					0.14	
fawf	[cm]	4.50	3.99-4.50	-	-	3.56	3.99-4.50
Dim of Aaprt X	[cm]		0.72	-	-	0.75	0.72
Dim of Aaprt Y	[cm]		0.60	-	-	0.60	0.60
TD	[usec]	0.63					
PRR	[Hz]	1755					
Pr at max Ipi	[Mpa]	3.98					
deq at max Ipi	[cm]					0.15	
FLx	[cm]		2.8-4.0	-	-		2.8-4.0
FLy	[cm]		2.50	-	-		2.50
Ipa,a at max MI	[W/cm2]	377.0					

L10-5 B mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.46	0.43	-	-	-	0.40
Pr,a	[Mpa]	3.90					
P	[mW]		18.07	-		-	18.07
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.17				-	
z at max Ipi,a	[cm]	1.33					
deq(Zb)	[cm]					-	
fawf	[cm]	7.13	7.13	-	-	-	7.13
Dim of Aaprt X	[cm]		0.72	-	-	-	0.72
Dim of Aaprt Y	[cm]		0.50	-	-	-	0.50
TD	[usec]	0.20					
PRR	[Hz]	9930					
Pr at max Ipi	[Mpa]	5.41					
deq at max Ipi	[cm]					-	
FLx	[cm]		1.50	-	-		1.50
FLy	[cm]		1.75	-	-		1.75
Ipa,a at max MI	[W/cm2]	519.1					

L10-5 M mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.53	0.04	0.11	-	0.22	0.11
Pr,a	[Mpa]	4.11					
P	[mW]		3.67	3.67		3.67	3.67
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.17				1.33	
z at max Ipi,a	[cm]	1.50					
deq(Zb)	[cm]					0.10	
fawf	[cm]	7.26	7.25-7.26	7.25-7.26	-	7.25	7.25-7.26
Dim of Aaprt X	[cm]		0.72	0.72	-	0.72	0.72
Dim of Aaprt Y	[cm]		0.50	0.50	-	0.50	0.50
TD	[usec]	0.21					
PRR	[Hz]	960					
Pr at max Ipi	[Mpa]	4.99					
deq at max Ipi	[cm]					0.09	
FLx	[cm]		1.50	1.50	-		1.50
FLy	[cm]		1.75	1.75	-		1.75
Ipa,a at max MI	[W/cm2]	612.1					

L10-5 CD		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.60	0.32	-	-	-	0.31
Pr,a	[Mpa]	4.29					
P	[mW]		13.13	-		-	13.13
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.17				-	
z at max Ipi,a	[cm]	1.33					
deq(Zb)	[cm]					-	
fawf	[cm]	7.17	6.49-7.17	-	-	-	6.49-7.17
Dim of Aaprt X	[cm]		0.72	-	-	-	0.72
Dim of Aaprt Y	[cm]		0.50	-	-	-	0.50
TD	[usec]	0.21					
PRR	[Hz]	750					
Pr at max Ipi	[Mpa]	4.89					
deq at max Ipi	[cm]					-	
FLx	[cm]		1.5-4.0	-	-		1.5-4.0
FLy	[cm]		1.75	-	-		1.75
Ipa,a at max MI	[W/cm2]	692.1					

L10-5 PW		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.46	(c)	0.43	-	1.02	0.52
Pr,a	[Mpa]	3.90					
P	[mW]		#	18.07		16.75	16.75
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.17				1.50	
z at max Ipi,a	[cm]	1.33					
deq(Zb)	[cm]					0.23	
fawf	[cm]	7.13	#	7.13	-	4.65	4.65
Dim of Aaprt X	[cm]		#	0.72	-	1.02	1.02
Dim of Aaprt Y	[cm]		#	0.50	-	0.50	0.50
TD	[usec]	0.20					
PRR	[Hz]	9930					
Pr at max Ipi	[Mpa]	5.41					
deq at max Ipi	[cm]					0.19	
FLx	[cm]		#	1.50	-		4.00
FLy	[cm]		#	1.75	-		1.75
Ipa,a at max MI	[W/cm2]	519.1					

L10-5 CDT		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.60	0.32	-	-	1.02	0.52
Pr,a	[Mpa]	4.29					
P	[mW]		13.13	-		16.75	16.75
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.17				1.50	
z at max Ipi,a	[cm]	1.33					
deq(Zb)	[cm]					0.23	
fawf	[cm]	7.17	6.49-7.17	-	-	4.65	4.65
Dim of Aaprt X	[cm]		0.72	-	-	1.02	1.02
Dim of Aaprt Y	[cm]		0.50	-	-	0.50	0.50
TD	[usec]	0.21					
PRR	[Hz]	750					
Pr at max Ipi	[Mpa]	4.89					
deq at max Ipi	[cm]					0.19	
FLx	[cm]		1.5-4.0	-	-		4.00
FLy	[cm]		1.75	-	-		1.75
Ipa,a at max MI	[W/cm2]	692.1					

L10-5 ocular B mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.17	0.01	-	-	-	0.01
Pr,a	[Mpa]	0.48					
P	[mW]		0.30	-		-	0.30
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.67				-	
z at max Ipi,a	[cm]	1.67					
deq(Zb)	[cm]					-	
fawf	[cm]	8.36	8.36	-	-	-	8.36
Dim of Aaprt X	[cm]		0.51	-	-	-	0.51
Dim of Aaprt Y	[cm]		0.50	-	-	-	0.50
TD	[usec]	0.21					
PRR	[Hz]	6845					
Pr at max Ipi	[Mpa]	0.76					
deq at max Ipi	[cm]					-	
FLx	[cm]		2.50	-	-		2.50
FLy	[cm]		1.75	-	-		1.75
Ipa,a at max MI	[W/cm2]	7.4					

L10-5 ocular M mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.17	0.00	-	-	0.00	0.00
Pr,a	[Mpa]	0.48					
P	[mW]		0.03	-		0.03	0.03
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.67				1.50	
z at max Ipi,a	[cm]	1.67					
deq(Zb)	[cm]					0.08	
fawf	[cm]	8.41	8.41-8.43	-	-	8.43	8.41-8.43
Dim of Aaprt X	[cm]		0.51	-	-	0.51	0.51
Dim of Aaprt Y	[cm]		0.50	-	-	0.50	0.50
TD	[usec]	0.21					
PRR	[Hz]	442					
Pr at max Ipi	[Mpa]	0.77					
deq at max Ipi	[cm]					0.09	
FLx	[cm]		2.50	-	-		2.50
FLy	[cm]		1.75	-	-		1.75
Ipa,a at max MI	[W/cm2]	7.4					

L10-5 ocular CD		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.17	0.00	-	-	-	0.00
Pr,a	[Mpa]	0.48					
P	[mW]		0.06	-		-	0.06
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.67				-	
z at max Ipi,a	[cm]	1.67					
deq(Zb)	[cm]					-	
fawf	[cm]	8.41	7.00-8.41	-	-	-	7.00-8.41
Dim of Aaprt X	[cm]		0.51	-	-	-	0.51
Dim of Aaprt Y	[cm]		0.50	-	-	-	0.50
TD	[usec]	0.21					
PRR	[Hz]	690					
Pr at max Ipi	[Mpa]	0.77					
deq at max Ipi	[cm]					-	
FLx	[cm]		2.5-10.0	-	-		2.5-10.0
FLy	[cm]		1.75	-	-		1.75
Ipa,a at max MI	[W/cm2]	7.3					

L10-5 ocular PW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.17	(c)	0.01	-	0.04	0.02
Pr,a	[Mpa]	0.48					
P	[mW]		#	0.40		0.40	0.40
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.67				1.17	
z at max Ipi,a	[cm]	1.67					
deq(Zb)	[cm]					0.14	
fawf	[cm]	8.36	#	4.81	-	4.81	4.81
Dim of Aaprt X	[cm]		#	0.51	-	0.51	0.51
Dim of Aaprt Y	[cm]		#	0.50	-	0.50	0.50
TD	[usec]	0.21					
PRR	[Hz]	6845					
Pr at max Ipi	[Mpa]	0.76					
deq at max Ipi	[cm]					0.13	
FLx	[cm]		#	2.00	-		2.00
FLy	[cm]		#	1.75	-		1.75
Ipa,a at max MI	[W/cm2]	7.4					

L10-5 ocular CDT		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.17	-	-	0.01	0.04	0.02
Pr,a	[Mpa]	0.48					
P	[mW]		-	-		0.40	0.40
min of[Pa(Zs),Ita,a(Zs)	[mW]				0.34		
Zs	[cm]				0.50		
Zbp	[cm]				0.50		
Zb	[cm]	1.67				1.17	
z at max Ipi,a	[cm]	1.67					
deq(Zb)	[cm]					0.14	
fawf	[cm]	8.41	-	-	4.81	4.81	4.81
Dim of Aaprt X	[cm]		-	-	0.51	0.51	0.51
Dim of Aaprt Y	[cm]		-	-	0.50	0.50	0.50
TD	[usec]	0.21					
PRR	[Hz]	690					
Pr at max Ipi	[Mpa]	0.77					
deq at max Ipi	[cm]					0.13	
FLx	[cm]		-	-	2.00		2.00
FLy	[cm]		-	-	1.75		1.75
Ipa,a at max MI	[W/cm2]	7.3					

L14-5sp B mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.70	0.37	-	-	-	0.40
Pr,a	[Mpa]	4.41					
P	[mW]		12.46	-		-	12.46
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	0.95				-	
z at max Ipi,a	[cm]	1.04					
deq(Zb)	[cm]					-	
fawf	[cm]	6.75	6.75	-	-	-	6.75
Dim of Aaprt X	[cm]		0.48	-	-	-	0.48
Dim of Aaprt Y	[cm]		0.35	-	-	-	0.35
TD	[usec]	0.22					
PRR	[Hz]	4829					
Pr at max Ipi	[Mpa]	5.24					
deq at max Ipi	[cm]					-	
FLx	[cm]		1.50	-	-		1.50
FLy	[cm]		1.25	-	-		1.25
Ipa,a at max MI	[W/cm2]	978.1					

L14-5sp M mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.67	0.07	-	-	0.34	0.21
Pr,a	[Mpa]	4.34					
P	[mW]		4.75	-		4.75	4.75
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	0.86				0.95	
z at max Ipi,a	[cm]	1.04					
deq(Zb)	[cm]					0.10	
fawf	[cm]	6.76	6.74-6.76	-	-	6.76	6.74-6.76
Dim of Aaprt X	[cm]		0.48	-	-	0.48	0.48
Dim of Aaprt Y	[cm]		0.35	-	-	0.35	0.35
TD	[usec]	0.22					
PRR	[Hz]	960					
Pr at max Ipi	[Mpa]	5.11					
deq at max Ipi	[cm]					0.10	
FLx	[cm]		1.50	-	-		1.50
FLy	[cm]		1.25	-	-		1.25
Ipa,a at max MI	[W/cm2]	817.9					

L14-5sp CD		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.26	0.66	-	-	-	0.60
Pr,a	[Mpa]	3.61					
P	[mW]		18.10	-		-	18.10
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	0.77				-	
z at max Ipi,a	[cm]	1.04					
deq(Zb)	[cm]					-	
fawf	[cm]	8.26	6.87-8.26	-	-	-	6.87-8.26
Dim of Aaprt X	[cm]		0.64	-	-	-	0.64
Dim of Aaprt Y	[cm]		0.35	-	-	-	0.35
TD	[usec]	0.41					
PRR	[Hz]	1690					
Pr at max Ipi	[Mpa]	4.29					
deq at max Ipi	[cm]					-	
FLx	[cm]		3.00	-	-		3.00
FLy	[cm]		1.25	-	-		1.25
Ipa,a at max MI	[W/cm2]	362.9					

L14-5sp PW		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.70	(c)	0.37	-	0.67	0.40
Pr,a	[Mpa]	4.41					
P	[mW]		#	12.46		6.10	12.46
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	0.95				1.31	
z at max Ipi,a	[cm]	1.04					
deq(Zb)	[cm]					0.09	
fawf	[cm]	6.75	#	6.75	-	8.01	6.75
Dim of Aaprt X	[cm]		#	0.48	-	0.52	0.48
Dim of Aaprt Y	[cm]		#	0.35	-	0.35	0.35
TD	[usec]	0.22					
PRR	[Hz]	4829					
Pr at max Ipi	[Mpa]	5.24					
deq at max Ipi	[cm]					0.09	
FLx	[cm]		#	1.50	-		1.50
FLy	[cm]		#	1.25	-		1.25
Ipa,a at max MI	[W/cm2]	978.1					

L14-5sp CDT		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.26	0.66	-	-	0.67	0.60
Pr,a	[Mpa]	3.61					
P	[mW]		18.10	-		6.10	18.10
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	0.77				1.31	
z at max Ipi,a	[cm]	1.04					
deq(Zb)	[cm]					0.09	
fawf	[cm]	8.26	6.87-8.26	-	-	8.01	6.87-8.26
Dim of Aaprt X	[cm]		0.64	-	-	0.52	0.64
Dim of Aaprt Y	[cm]		0.35	-	-	0.35	0.35
TD	[usec]	0.41					
PRR	[Hz]	1690					
Pr at max Ipi	[Mpa]	4.29					
deq at max Ipi	[cm]					0.09	
FLx	[cm]		3.00	-	-		3.00
FLy	[cm]		1.25	-	-		1.25
Ipa,a at max MI	[W/cm2]	362.9					

L14-5sp ocular B mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.14	0.01	-	-	-	0.00
Pr,a	[Mpa]	0.44					
P	[mW]		0.13	-		-	0.13
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.22				-	
z at max Ipi,a	[cm]	1.22					
deq(Zb)	[cm]					-	
fawf	[cm]	9.97	9.97	-	-	-	9.97
Dim of Aaprt X	[cm]		0.48	-	-	-	0.48
Dim of Aaprt Y	[cm]		0.35	-	-	-	0.35
TD	[usec]	0.13					
PRR	[Hz]	5997					
Pr at max Ipi	[Mpa]	0.68					
deq at max Ipi	[cm]					-	
FLx	[cm]		1.50	-	-		1.50
FLy	[cm]		1.25	-	-		1.25
Ipa,a at max MI	[W/cm2]	5.6					

L14-5sp ocular M mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.14	0.00	-	-	0.00	0.00
Pr,a	[Mpa]	0.46					
P	[mW]		0.02	-		0.02	0.02
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.22				1.22	
z at max Ipi,a	[cm]	1.22					
deq(Zb)	[cm]					0.11	
fawf	[cm]	10.11	10.11-10.12	-	-	10.11	10.11-10.12
Dim of Aaprt X	[cm]		0.48	-	-	0.48	0.48
Dim of Aaprt Y	[cm]		0.35	-	-	0.35	0.35
TD	[usec]	0.13					
PRR	[Hz]	480					
Pr at max Ipi	[Mpa]	0.68					
deq at max Ipi	[cm]					0.11	
FLx	[cm]		1.50	-	-		1.50
FLy	[cm]		1.25	-	-		1.25
Ipa,a at max MI	[W/cm2]	5.8					

L14-5sp ocular CD		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.14	0.00	-	-	-	0.00
Pr,a	[Mpa]	0.45					
P	[mW]		0.07	-		-	0.07
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.22				-	
z at max Ipi,a	[cm]	1.22					
deq(Zb)	[cm]					-	
fawf	[cm]	10.14	9.55-10.14	-	-	-	9.55-10.14
Dim of Aaprt X	[cm]		0.64	-	-	-	0.64
Dim of Aaprt Y	[cm]		0.35	-	-	-	0.35
TD	[usec]	0.13					
PRR	[Hz]	630					
Pr at max Ipi	[Mpa]	0.69					
deq at max Ipi	[cm]					-	
FLx	[cm]		1.5-3.0	-	-		1.5-3.0
FLy	[cm]		1.25	-	-		1.25
Ipa,a at max MI	[W/cm2]	5.6					

L14-5sp ocular PW		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.14	(c)	0.03	-	0.08	0.04
Pr,a	[Mpa]	0.44					
P	[mW]		#	1.13		1.13	1.13
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.22				0.68	
z at max Ipi,a	[cm]	1.22					
deq(Zb)	[cm]					0.24	
fawf	[cm]	9.97	#	5.26	-	5.26	5.26
Dim of Aaprt X	[cm]		#	1.28	-	1.28	1.28
Dim of Aaprt Y	[cm]		#	0.35	-	0.35	0.35
TD	[usec]	0.13					
PRR	[Hz]	5997					
Pr at max Ipi	[Mpa]	0.68					
deq at max Ipi	[cm]					0.23	
FLx	[cm]		#	5.00	-		5.00
FLy	[cm]		#	1.25	-		1.25
Ipa,a at max MI	[W/cm2]	5.6					

L14-5sp ocular CDT		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.14	-	0.03	-	0.08	0.04
Pr,a	[Mpa]	0.45					
P	[mW]		-	1.13		1.13	1.13
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.22				0.68	
z at max Ipi,a	[cm]	1.22					
deq(Zb)	[cm]					0.24	
fawf	[cm]	10.14	-	5.26	-	5.26	5.26
Dim of Aaprt X	[cm]		-	1.28	-	1.28	1.28
Dim of Aaprt Y	[cm]		-	0.35	-	0.35	0.35
TD	[usec]	0.13					
PRR	[Hz]	630					
Pr at max Ipi	[Mpa]	0.69					
deq at max Ipi	[cm]					0.23	
FLx	[cm]		-	5.00	-		5.00
FLy	[cm]		-	1.25	-		1.25
Ipa,a at max MI	[W/cm2]	5.6					

L14-5w B mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.61	0.67	-	-	-	0.94
Pr,a	[Mpa]	3.85					
P	[mW]		43.38	-		-	43.38
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.49				-	
z at max Ipi,a	[cm]	1.77					
deq(Zb)	[cm]					-	
fawf	[cm]	5.76	5.76	-	-	-	5.76
Dim of Aaprt X	[cm]		0.93	-	-	-	0.93
Dim of Aaprt Y	[cm]		0.40	-	-	-	0.40
TD	[usec]	0.39					
PRR	[Hz]	4855					
Pr at max Ipi	[Mpa]	5.18					
deq at max Ipi	[cm]					-	
FLx	[cm]		2.10	-	-		2.10
FLy	[cm]		2.00	-	-		2.00
Ipa,a at max MI	[W/cm2]	426.4					

L14-5w M mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.60	0.16	-	-	0.55	0.55
Pr,a	[Mpa]	3.84					
P	[mW]		19.32	-		19.32	19.32
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.63				1.77	
z at max Ipi,a	[cm]	1.77					
deq(Zb)	[cm]					0.18	
fawf	[cm]	5.78	5.78-5.81	-	-	5.81	5.78-5.81
Dim of Aaprt X	[cm]		0.93	-	-	0.93	0.93
Dim of Aaprt Y	[cm]		0.40	-	-	0.40	0.40
TD	[usec]	0.40					
PRR	[Hz]	1191					
Pr at max Ipi	[Mpa]	5.18					
deq at max Ipi	[cm]					0.18	
FLx	[cm]		2.10	-	-		2.10
FLy	[cm]		2.00	-	-		2.00
Ipa,a at max MI	[W/cm2]	458.4					

L14-5w CD		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.51	0.42	-	-	-	0.58
Pr,a	[Mpa]	3.64					
P	[mW]		24.17	-		-	24.17
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.63				-	
z at max Ipi,a	[cm]	1.77					
deq(Zb)	[cm]					-	
fawf	[cm]	5.83	5.67-5.83	-	-	-	5.67-5.83
Dim of Aaprt X	[cm]		0.93	-	-	-	0.93
Dim of Aaprt Y	[cm]		0.40	-	-	-	0.40
TD	[usec]	0.40					
PRR	[Hz]	620					
Pr at max Ipi	[Mpa]	4.92					
deq at max Ipi	[cm]					-	
FLx	[cm]		2.1-4.0	-	-		2.1-4.0
FLy	[cm]		2.00	-	-		2.00
Ipa,a at max MI	[W/cm2]	421.9					

L14-5w PW		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.61	(c)	1.26	-	1.71	1.29
Pr,a	[Mpa]	3.85					
P	[mW]		#	37.18		37.18	37.18
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.49				1.21	
z at max Ipi,a	[cm]	1.77					
deq(Zb)	[cm]					0.27	
fawf	[cm]	5.76	#	7.14	-	7.14	7.14
Dim of Aaprt X	[cm]		#	1.01	-	1.01	1.01
Dim of Aaprt Y	[cm]		#	0.40	-	0.40	0.40
TD	[usec]	0.39					
PRR	[Hz]	4855					
Pr at max Ipi	[Mpa]	5.18					
deq at max Ipi	[cm]					0.20	
FLx	[cm]		#	4.00	-		4.00
FLy	[cm]		#	2.00	-		2.00
Ipa,a at max MI	[W/cm2]	426.4					

L14-5w CDT		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.51	0.42	1.26	-	1.71	1.29
Pr,a	[Mpa]	3.64					
P	[mW]		24.17	37.18		37.18	37.18
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.63				1.21	
z at max Ipi,a	[cm]	1.77					
deq(Zb)	[cm]					0.27	
fawf	[cm]	5.83	5.67-5.83	7.14	-	7.14	7.14
Dim of Aaprt X	[cm]		0.93	1.01	-	1.01	1.01
Dim of Aaprt Y	[cm]		0.40	0.40	-	0.40	0.40
TD	[usec]	0.40					
PRR	[Hz]	620					
Pr at max Ipi	[Mpa]	4.92					
deq at max Ipi	[cm]					0.20	
FLx	[cm]		2.1-4.0	4.00	-		4.00
FLy	[cm]		2.00	2.00	-		2.00
Ipa,a at max MI	[W/cm2]	421.9					

L14-5w ocular B mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.14	0.00	-	-	-	0.00
Pr,a	[Mpa]	0.40					
P	[mW]		0.12	-		-	0.12
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.91				-	
z at max Ipi,a	[cm]	1.91					
deq(Zb)	[cm]					-	
fawf	[cm]	8.32	8.32	-	-	-	8.32
Dim of Aaprt X	[cm]		0.93	-	-	-	0.93
Dim of Aaprt Y	[cm]		0.40	-	-	-	0.40
TD	[usec]	0.15					
PRR	[Hz]	6007					
Pr at max Ipi	[Mpa]	0.71					
deq at max Ipi	[cm]					-	
FLx	[cm]		2.10	-	-		2.10
FLy	[cm]		2.00	-	-		2.00
Ipa,a at max MI	[W/cm2]	6.6					

L14-5w ocular M mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.15	0.00	-	-	0.00	0.00
Pr,a	[Mpa]	0.44					
P	[mW]		0.03	-		0.03	0.03
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.05				2.05	
z at max Ipi,a	[cm]	2.05					
deq(Zb)	[cm]					0.09	
fawf	[cm]	8.31	8.31-8.38	-	-	8.31	8.31-8.38
Dim of Aaprt X	[cm]		0.93	-	-	0.93	0.93
Dim of Aaprt Y	[cm]		0.40	-	-	0.40	0.40
TD	[usec]	0.15					
PRR	[Hz]	480					
Pr at max Ipi	[Mpa]	0.79					
deq at max Ipi	[cm]					0.09	
FLx	[cm]		2.10	-	-		2.10
FLy	[cm]		2.00	-	-		2.00
Ipa,a at max MI	[W/cm2]	7.7					

L14-5w ocular CD		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.14	0.00	-	-	-	0.00
Pr,a	[Mpa]	0.40					
P	[mW]		0.10	-		-	0.10
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.05				-	
z at max Ipi,a	[cm]	1.77					
deq(Zb)	[cm]					-	
fawf	[cm]	8.28	8.28-9.13	-	-	-	8.28-9.13
Dim of Aaprt X	[cm]		0.93	-	-	-	0.93
Dim of Aaprt Y	[cm]		0.40	-	-	-	0.40
TD	[usec]	0.15					
PRR	[Hz]	2340					
Pr at max Ipi	[Mpa]	0.71					
deq at max Ipi	[cm]					-	
FLx	[cm]		2.1-4.0	-	-		2.1-4.0
FLy	[cm]		2.00	-	-		2.00
Ipa,a at max MI	[W/cm2]	6.2					

L14-5w ocular PW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.14	(c)	0.13	-	0.15	0.11
Pr,a	[Mpa]	0.40					
P	[mW]		#	3.84		3.84	3.84
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.91				1.21	
z at max Ipi,a	[cm]	1.91					
deq(Zb)	[cm]					0.34	
fawf	[cm]	8.32	#	7.16	-	7.16	7.16
Dim of Aaprt X	[cm]		#	1.51	-	1.51	1.51
Dim of Aaprt Y	[cm]		#	0.40	-	0.40	0.40
TD	[usec]	0.15					
PRR	[Hz]	6007					
Pr at max Ipi	[Mpa]	0.71					
deq at max Ipi	[cm]					0.17	
FLx	[cm]		#	6.00	-		6.00
FLy	[cm]		#	2.00	-		2.00
Ipa,a at max MI	[W/cm2]	6.6					

L14-5w ocular CDT		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.14	-	0.13	-	0.15	0.11
Pr,a	[Mpa]	0.40					
P	[mW]		-	3.84		3.84	3.84
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.05				1.21	
z at max Ipi,a	[cm]	1.77					
deq(Zb)	[cm]					0.34	
fawf	[cm]	8.28	-	7.16	-	7.16	7.16
Dim of Aaprt X	[cm]		-	1.51	-	1.51	1.51
Dim of Aaprt Y	[cm]		-	0.40	-	0.40	0.40
TD	[usec]	0.15					
PRR	[Hz]	2340					
Pr at max Ipi	[Mpa]	0.71					
deq at max Ipi	[cm]					0.17	
FLx	[cm]		-	6.00	-		6.00
FLy	[cm]		-	2.00	-		2.00
Ipa,a at max MI	[W/cm2]	6.2					

L20-5 B mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.50	0.47	-	-	-	0.34
Pr,a	[Mpa]	4.49					
P	[mW]		10.51	-		-	10.51
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	0.73				-	
z at max Ipi,a	[cm]	0.73					
deq(Zb)	[cm]					-	
fawf	[cm]	8.93	10.19	-	-	-	10.19
Dim of Aaprt X	[cm]		0.36	-	-	-	0.36
Dim of Aaprt Y	[cm]		0.35	-	-	-	0.35
TD	[usec]	0.22					
PRR	[Hz]	7074					
Pr at max Ipi	[Mpa]	5.62					
deq at max Ipi	[cm]					-	
FLx	[cm]		1.00	-	-		1.00
FLy	[cm]		1.38	-	-		1.38
Ipa,a at max MI	[W/cm2]	610.2					

L20-5 M mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.30	0.07	0.13	-	0.17	0.14
Pr,a	[Mpa]	3.93					
P	[mW]		3.12	3.12		3.12	3.12
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	0.62				0.62	
z at max Ipi,a	[cm]	0.73					
deq(Zb)	[cm]					0.14	
fawf	[cm]	9.14	9.04-9.14	9.04-9.14	-	9.14	9.04-9.14
Dim of Aaprt X	[cm]		0.36	0.36	-	0.36	0.36
Dim of Aaprt Y	[cm]		0.35	0.35	-	0.35	0.35
TD	[usec]	0.16					
PRR	[Hz]	960					
Pr at max Ipi	[Mpa]	2.91					
deq at max Ipi	[cm]					0.13	
FLx	[cm]		1.00	1.00	-		1.00
FLy	[cm]		1.38	1.38	-		1.38
Ipa,a at max MI	[W/cm2]	562.6					

L20-5 CD		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.27	0.48	-	-	-	0.34
Pr,a	[Mpa]	3.76					
P	[mW]		9.92	-		-	9.92
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	0.62				-	
z at max Ipi,a	[cm]	0.85					
deq(Zb)	[cm]					-	
fawf	[cm]	8.77	9.00-10.81	-	-	-	9.00-10.81
Dim of Aaprt X	[cm]		0.48	-	-	-	0.48
Dim of Aaprt Y	[cm]		0.35	-	-	-	0.35
TD	[usec]	0.18					
PRR	[Hz]	870					
Pr at max Ipi	[Mpa]	4.47					
deq at max Ipi	[cm]					-	
FLx	[cm]		1.0-2.5	-	-		1.0-2.5
FLy	[cm]		1.38	-	-		1.38
Ipa,a at max MI	[W/cm2]	380.0					

L20-5 PW		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.50	(c)	0.47	-	0.72	0.40
Pr,a	[Mpa]	4.49					
P	[mW]		#	10.51		8.63	8.63
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	0.73				0.96	
z at max Ipi,a	[cm]	0.73					
deq(Zb)	[cm]					0.14	
fawf	[cm]	8.93	#	10.19	-	10.02	10.02
Dim of Aaprt X	[cm]		#	0.36	-	0.64	0.64
Dim of Aaprt Y	[cm]		#	0.35	-	0.35	0.35
TD	[usec]	0.22					
PRR	[Hz]	7074					
Pr at max Ipi	[Mpa]	5.62					
deq at max Ipi	[cm]					0.10	
FLx	[cm]		#	1.00	-		2.50
FLy	[cm]		#	1.38	-		1.38
Ipa,a at max MI	[W/cm2]	610.2					

L20-5 CDT		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.27	0.48	-	-	0.72	0.40
Pr,a	[Mpa]	3.76					
P	[mW]		9.92	-		8.63	8.63
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	0.62				0.96	
z at max Ipi,a	[cm]	0.85					
deq(Zb)	[cm]					0.14	
fawf	[cm]	8.77	9.00-10.81	-	-	10.02	10.02
Dim of Aaprt X	[cm]		0.48	-	-	0.64	0.64
Dim of Aaprt Y	[cm]		0.35	-	-	0.35	0.35
TD	[usec]	0.18					
PRR	[Hz]	870					
Pr at max Ipi	[Mpa]	4.47					
deq at max Ipi	[cm]					0.10	
FLx	[cm]		1.0-2.5	-	-		2.50
FLy	[cm]		1.38	-	-		1.38
Ipa,a at max MI	[W/cm2]	380.0					

L20-5 ocular B mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.13	0.01	-	-	-	0.00
Pr,a	[Mpa]	0.47					
P	[mW]		0.13	-		-	0.13
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.54				-	
z at max Ipi,a	[cm]	1.54					
deq(Zb)	[cm]					-	
fawf	[cm]	13.78	13.78	-	-	-	13.78
Dim of Aaprt X	[cm]		0.54	-	-	-	0.54
Dim of Aaprt Y	[cm]		0.35	-	-	-	0.35
TD	[usec]	0.10					
PRR	[Hz]	4536					
Pr at max Ipi	[Mpa]	0.98					
deq at max Ipi	[cm]					-	
FLx	[cm]		1.50	-	-		1.50
FLy	[cm]		1.38	-	-		1.38
Ipa,a at max MI	[W/cm2]	9.8					

L20-5 ocular M mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.14	0.00	-	-	0.00	0.00
Pr,a	[Mpa]	0.52					
P	[mW]		0.03	-		0.03	0.03
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.54				1.54	
z at max Ipi,a	[cm]	1.54					
deq(Zb)	[cm]					0.08	
fawf	[cm]	13.87	13.76-13.87	-	-	13.87	13.76-13.87
Dim of Aaprt X	[cm]		0.48	-	-	0.48	0.48
Dim of Aaprt Y	[cm]		0.35	-	-	0.35	0.35
TD	[usec]	0.11					
PRR	[Hz]	480					
Pr at max Ipi	[Mpa]	1.00					
deq at max Ipi	[cm]					0.08	
FLx	[cm]		2.00	-	-		2.00
FLy	[cm]		1.38	-	-		1.38
Ipa,a at max MI	[W/cm2]	11.7					

L20-5 ocular CD		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.10	0.01	-	-	-	0.01
Pr,a	[Mpa]	0.36					
P	[mW]		0.22	-		-	0.22
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.54				-	
z at max Ipi,a	[cm]	1.54					
deq(Zb)	[cm]					-	
fawf	[cm]	12.85	12.85-13.51	-	-	-	12.85-13.51
Dim of Aaprt X	[cm]		0.54	-	-	-	0.54
Dim of Aaprt Y	[cm]		0.35	-	-	-	0.35
TD	[usec]	0.23					
PRR	[Hz]	3315					
Pr at max Ipi	[Mpa]	0.68					
deq at max Ipi	[cm]					-	
FLx	[cm]		1.5-2.0	-	-		1.5-2.0
FLy	[cm]		1.38	-	-		1.38
Ipa,a at max MI	[W/cm2]	4.0					

L20-5 ocular PW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.13	(c)	0.04	-	0.07	0.04
Pr,a	[Mpa]	0.47					
P	[mW]		#	1.03		1.03	1.03
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.54				0.85	
z at max Ipi,a	[cm]	1.54					
deq(Zb)	[cm]					0.21	
fawf	[cm]	13.78	#	8.12	-	8.12	8.12
Dim of Aaprt X	[cm]		#	0.96	-	0.96	0.96
Dim of Aaprt Y	[cm]		#	0.35	-	0.35	0.35
TD	[usec]	0.10					
PRR	[Hz]	4536					
Pr at max Ipi	[Mpa]	0.98					
deq at max Ipi	[cm]					0.12	
FLx	[cm]		#	4.00	-		4.00
FLy	[cm]		#	1.38	-		1.38
Ipa,a at max MI	[W/cm2]	9.8					

L20-5 ocular CDT		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.10	-	0.04	-	0.07	0.04
Pr,a	[Mpa]	0.36					
P	[mW]		-	1.03		1.03	1.03
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.54				0.85	
z at max Ipi,a	[cm]	1.54					
deq(Zb)	[cm]					0.21	
fawf	[cm]	12.85	-	8.12	-	8.12	8.12
Dim of Aaprt X	[cm]		-	0.96	-	0.96	0.96
Dim of Aaprt Y	[cm]		-	0.35	-	0.35	0.35
TD	[usec]	0.23					
PRR	[Hz]	3315					
Pr at max Ipi	[Mpa]	0.68					
deq at max Ipi	[cm]					0.12	
FLx	[cm]		-	4.00	-		4.00
FLy	[cm]		-	1.38	-		1.38
Ipa,a at max MI	[W/cm2]	4.0					

P4-1c B mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.54	0.61	-	-	-	1.37
Pr,a	[Mpa]	2.09					
P	[mW]		84.87	-		-	84.87
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.98				-	
z at max Ipi,a	[cm]	3.81					
deq(Zb)	[cm]					-	
fawf	[cm]	1.83	1.83	-	-	-	1.83
Dim of Aaprt X	[cm]		1.23	-	-	-	1.23
Dim of Aaprt Y	[cm]		1.30	-	-	-	1.30
TD	[usec]	1.31					
PRR	[Hz]	2345					
Pr at max Ipi	[Mpa]	2.25					
deq at max Ipi	[cm]					-	
FLx	[cm]		6.00	-	-		6.00
FLy	[cm]		7.50	-	-		7.50
Ipa,a at max MI	[W/cm2]	167.7					

P4-1c M Mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.52	0.07	-	-	0.72	0.47
Pr,a	[Mpa]	2.05					
P	[mW]		26.73	-		26.73	26.73
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.98				3.26	
z at max Ipi,a	[cm]	3.81					
deq(Zb)	[cm]					0.36	
fawf	[cm]	1.83	1.83-1.83	-	-	1.83	1.83-1.83
Dim of Aaprt X	[cm]		1.23	-	-	1.23	1.23
Dim of Aaprt Y	[cm]		1.30	-	-	1.30	1.30
TD	[usec]	1.31					
PRR	[Hz]	259					
Pr at max Ipi	[Mpa]	2.25					
deq at max Ipi	[cm]					0.34	
FLx	[cm]		6.00	-	-		6.00
FLy	[cm]		7.50	-	-		7.50
Ipa,a at max MI	[W/cm2]	166.5					

P4-1c CD		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.97	1.10	-	-	-	1.74
Pr,a	[Mpa]	1.31					
P	[mW]		103.33	-		-	103.33
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.98				-	
z at max Ipi,a	[cm]	3.53					
deq(Zb)	[cm]					-	
fawf	[cm]	1.84	1.84-2.71	-	-	-	1.84-2.71
Dim of Aaprt X	[cm]		1.23	-	-	-	1.23
Dim of Aaprt Y	[cm]		1.30	-	-	-	1.30
TD	[usec]	1.38					
PRR	[Hz]	1382					
Pr at max Ipi	[Mpa]	1.56					
deq at max Ipi	[cm]					-	
FLx	[cm]		4.0-6.0	-	-		4.0-6.0
FLy	[cm]		7.50	-	-		7.50
Ipa,a at max MI	[W/cm2]	63.2					

P4-1c PW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.54	(c)	0.61	-	2.32	1.37
Pr,a	[Mpa]	2.09					
P	[mW]		#	84.87		49.63	84.87
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.98				2.98	
z at max Ipi,a	[cm]	3.81					
deq(Zb)	[cm]					0.32	
fawf	[cm]	1.83	#	1.83	-	2.03	1.83
Dim of Aaprt X	[cm]		#	1.23	-	1.01	1.23
Dim of Aaprt Y	[cm]		#	1.30	-	1.30	1.30
TD	[usec]	1.31					
PRR	[Hz]	2345					
Pr at max Ipi	[Mpa]	2.25					
deq at max Ipi	[cm]					0.31	
FLx	[cm]		#	6.00	-		6.00
FLy	[cm]		#	7.50	-		7.50
Ipa,a at max MI	[W/cm2]	167.7					

P4-1c CW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.09	(c)	-	0.48	2.93	1.22
Pr,a	[Mpa]	0.13					
P	[mW]		#	-		57.37	57.37
min of[Pa(Zs),Ita,a(Zs)	[mW]				51.65		
Zs	[cm]				0.78		
Zbp	[cm]				0.78		
Zb	[cm]	2.98				2.71	
z at max Ipi,a	[cm]	2.98					
deq(Zb)	[cm]					0.31	
fawf	[cm]	1.96	#	-	1.96	1.96	1.96
Dim of Aaprt X	[cm]		#	-	0.84	0.84	0.84
Dim of Aaprt Y	[cm]		#	-	1.30	1.30	1.30
TD	[usec]	5.00					
PRR	[Hz]	200000					
Pr at max Ipi	[Mpa]	0.16					
deq at max Ipi	[cm]					0.30	
FLx	[cm]		#	-	5.00		5.00
FLy	[cm]		#	-	7.50		7.50
Ipa,a at max MI	[W/cm2]	0.5					

P4-1c CDT		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.97	1.10	-	-	2.32	0.96
Pr,a	[Mpa]	1.31					
P	[mW]		103.33	-		49.63	49.63
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.98				2.98	
z at max Ipi,a	[cm]	3.53					
deq(Zb)	[cm]					0.32	
fawf	[cm]	1.84	1.84-2.71	-	-	2.03	2.03
Dim of Aaprt X	[cm]		1.23	-	-	1.01	1.01
Dim of Aaprt Y	[cm]		1.30	-	-	1.30	1.30
TD	[usec]	1.38					
PRR	[Hz]	1382					
Pr at max Ipi	[Mpa]	1.56					
deq at max Ipi	[cm]					0.31	
FLx	[cm]		4.0-6.0	-	-		4.00
FLy	[cm]		7.50	-	-		7.50
Ipa,a at max MI	[W/cm2]	63.2					

P8-3 TEE B mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.40	0.06	-	-	-	0.05
Pr,a	[Mpa]	0.94					
P	[mW]		2.12	-		-	2.12
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.29				-	
z at max Ipi,a	[cm]	2.65					
deq(Zb)	[cm]					-	
fawf	[cm]	5.59	5.59	-	-	-	5.59
Dim of Aaprt X	[cm]		0.70	-	-	-	0.70
Dim of Aaprt Y	[cm]		0.91	-	-	-	0.91
TD	[usec]	0.28					
PRR	[Hz]	2249					
Pr at max Ipi	[Mpa]	1.43					
deq at max Ipi	[cm]					-	
FLx	[cm]		7.00	-	-		7.00
FLy	[cm]		5.00	-	-		5.00
Ipa,a at max MI	[W/cm2]	33.2					

P8-3 TEE M Mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.57	0.03	0.07	-	0.04	0.07
Pr,a	[Mpa]	1.33					
P	[mW]		2.59	2.59		2.59	2.59
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.29				0.86	
z at max Ipi,a	[cm]	2.65					
deq(Zb)	[cm]					0.46	
fawf	[cm]	5.44	5.44-5.44	5.44-5.44	-	5.44	5.44-5.44
Dim of Aaprt X	[cm]		0.70	0.70	-	0.70	0.70
Dim of Aaprt Y	[cm]		0.91	0.91	-	0.91	0.91
TD	[usec]	0.28					
PRR	[Hz]	554					
Pr at max Ipi	[Mpa]	1.96					
deq at max Ipi	[cm]					0.24	
FLx	[cm]		7.00	7.00	-		7.00
FLy	[cm]		5.00	5.00	-		5.00
Ipa,a at max MI	[W/cm2]	67.3					

P8-3 TEE CD		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.35	0.03	-	-	-	0.04
Pr,a	[Mpa]	0.56					
P	[mW]		1.73	-		-	1.73
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.94				-	
z at max Ipi,a	[cm]	1.58					
deq(Zb)	[cm]					-	
fawf	[cm]	2.56	2.56-5.60	-	-	-	2.56-5.60
Dim of Aaprt X	[cm]		0.70	-	-	-	0.70
Dim of Aaprt Y	[cm]		0.91	-	-	-	0.91
TD	[usec]	1.89					
PRR	[Hz]	2251					
Pr at max Ipi	[Mpa]	0.62					
deq at max Ipi	[cm]					-	
FLx	[cm]		7.00	-	-		7.00
FLy	[cm]		5.00	-	-		5.00
Ipa,a at max MI	[W/cm2]	8.3					

P8-3 TEE PW		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.40	(c)	0.07	-	0.32	0.11
Pr,a	[Mpa]	0.94					
P	[mW]		#	4.91		4.91	4.91
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	2.29				1.94	
z at max Ipi,a	[cm]	2.65					
deq(Zb)	[cm]					0.23	
fawf	[cm]	5.59	#	3.17	-	3.17	3.17
Dim of Aaprt X	[cm]		#	1.01	-	1.01	1.01
Dim of Aaprt Y	[cm]		#	0.91	-	0.91	0.91
TD	[usec]	0.28					
PRR	[Hz]	2249					
Pr at max Ipi	[Mpa]	1.43					
deq at max Ipi	[cm]					0.22	
FLx	[cm]		#	4.00	-		4.00
FLy	[cm]		#	5.00	-		5.00
Ipa,a at max MI	[W/cm2]	33.2					

P8-3 TEE CW		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.03	-	0.06	-	0.86	0.20
Pr,a	[Mpa]	0.05					
P	[mW]		-	4.32		4.32	4.32
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	0.68				0.68	
z at max Ipi,a	[cm]	1.40					
deq(Zb)	[cm]					0.16	
fawf	[cm]	2.96	-	2.96	-	2.96	2.96
Dim of Aaprt X	[cm]		-	0.26	-	0.26	0.26
Dim of Aaprt Y	[cm]		-	0.91	-	0.91	0.91
TD	[usec]	5.02					
PRR	[Hz]	200000					
Pr at max Ipi	[Mpa]	0.06					
deq at max Ipi	[cm]					0.21	
FLx	[cm]		-	1.00	-		1.00
FLy	[cm]		-	5.00	-		5.00
Ipa,a at max MI	[W/cm2]	0.1					

P8-3 TEE CDT		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.35	0.03	0.07	-	0.32	0.11
Pr,a	[Mpa]	0.56					
P	[mW]		1.73	4.91		4.91	4.91
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	1.94				1.94	
z at max Ipi,a	[cm]	1.58					
deq(Zb)	[cm]					0.23	
fawf	[cm]	2.56	2.56-5.60	3.17	-	3.17	3.17
Dim of Aaprt X	[cm]		0.70	1.01	-	1.01	1.01
Dim of Aaprt Y	[cm]		0.91	0.91	-	0.91	0.91
TD	[usec]	1.89					
PRR	[Hz]	2251					
Pr at max Ipi	[Mpa]	0.62					
deq at max Ipi	[cm]					0.22	
FLx	[cm]		7.00	4.00	-		4.00
FLy	[cm]		5.00	5.00	-		5.00
Ipa,a at max MI	[W/cm2]	8.3					

P9-3ic B mode		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		1.09	0.42	-	-	-	1.12
Pr,a	[Mpa]	2.14					
P	[mW]		22.87	-		-	22.87
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	0.64				-	
z at max Ipi,a	[cm]	0.64					
deq(Zb)	[cm]					-	
fawf	[cm]	3.87	3.87	-	-	-	3.87
Dim of Aaprt X	[cm]		0.64	-	-	-	0.64
Dim of Aaprt Y	[cm]		0.20	-	-	-	0.20
TD	[usec]	0.49					
PRR	[Hz]	5097					
Pr at max Ipi	[Mpa]	1.82					
deq at max Ipi	[cm]					-	
FLx	[cm]		3.50	-	-		3.50
FLy	[cm]		2.54	-	-		2.54
Ipa,a at max MI	[W/cm2]	146.4					

P9-3ic M Mode		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.11	0.09	0.13	-	0.17	0.39
Pr,a	[Mpa]	2.17					
P	[mW]		7.32	7.32		7.32	7.32
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	0.64				0.50	
z at max Ipi,a	[cm]	0.64					
deq(Zb)	[cm]					0.25	
fawf	[cm]	3.85	3.85-3.86	3.85-3.86	-	3.86	3.85-3.86
Dim of Aaprt X	[cm]		0.64	0.64	-	0.64	0.64
Dim of Aaprt Y	[cm]		0.20	0.20	-	0.20	0.20
TD	[usec]	0.48					
PRR	[Hz]	1256					
Pr at max Ipi	[Mpa]	1.88					
deq at max Ipi	[cm]					0.25	
FLx	[cm]		3.50	3.50	-		3.50
FLy	[cm]		2.54	2.54	-		2.54
Ipa,a at max MI	[W/cm2]	153.7					

P9-3ic CD		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.82	0.27	-	-	-	0.67
Pr,a	[Mpa]	1.68					
P	[mW]		14.14	-		-	14.14
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	0.64				-	
z at max Ipi,a	[cm]	0.64					
deq(Zb)	[cm]					-	
fawf	[cm]	4.20	3.94-4.20	-	-	-	3.94-4.20
Dim of Aaprt X	[cm]		0.80	-	-	-	0.80
Dim of Aaprt Y	[cm]		0.20	-	-	-	0.20
TD	[usec]	0.70					
PRR	[Hz]	2592					
Pr at max Ipi	[Mpa]	1.53					
deq at max Ipi	[cm]					-	
FLx	[cm]		3.50	-	-		3.50
FLy	[cm]		2.54	-	-		2.54
Ipa,a at max MI	[W/cm2]	83.1					

P9-3ic PW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		1.09	(c)	0.42	-	1.02	1.12
Pr,a	[Mpa]	2.14					
P	[mW]		#	22.87		5.51	22.87
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	0.64				0.50	
z at max Ipi,a	[cm]	0.64					
deq(Zb)	[cm]					0.11	
fawf	[cm]	3.87	#	3.87	-	4.18	3.87
Dim of Aaprt X	[cm]		#	0.64	-	0.26	0.64
Dim of Aaprt Y	[cm]		#	0.20	-	0.20	0.20
TD	[usec]	0.49					
PRR	[Hz]	5097					
Pr at max Ipi	[Mpa]	1.82					
deq at max Ipi	[cm]					0.11	
FLx	[cm]		#	3.50	-		3.50
FLy	[cm]		#	2.54	-		2.54
Ipa,a at max MI	[W/cm2]	146.4					

P9-3ic CW		MI	TIS Scan	TIS non-scan < 1	TIS non-scan > 1	TIB non-scan	TIC
		0.05	-	-	0.15	0.95	0.59
Pr,a	[Mpa]	0.11					
P	[mW]		-	-		5.47	9.21
min of[Pa(Zs),Ita,a(Zs)	[mW]				7.71		
Zs	[cm]				0.64		
Zbp	[cm]				0.64		
Zb	[cm]	0.50				0.50	
z at max Ipi,a	[cm]	0.50					
deq(Zb)	[cm]					0.13	
fawf	[cm]	4.00	-	-	4.00	4.00	4.00
Dim of Aaprt X	[cm]		-	-	0.60	0.28	0.60
Dim of Aaprt Y	[cm]		-	-	0.20	0.20	0.20
TD	[usec]	5.00					
PRR	[Hz]	200000					
Pr at max Ipi	[Mpa]	0.12					
deq at max Ipi	[cm]					0.13	
FLx	[cm]		-	-	4.00		4.00
FLy	[cm]		-	-	2.54		2.54
Ipa,a at max MI	[W/cm2]	0.4					

P9-3ic CDT		**MI**	**TIS Scan**	**TIS non-scan < 1**	**TIS non-scan > 1**	**TIB non-scan**	**TIC**
		0.82	0.27	-	-	1.02	0.67
Pr,a	[Mpa]	1.68					
P	[mW]		14.14	-		5.51	14.14
min of[Pa(Zs),Ita,a(Zs)	[mW]				-		
Zs	[cm]				-		
Zbp	[cm]				-		
Zb	[cm]	0.64				0.50	
z at max Ipi,a	[cm]	0.64					
deq(Zb)	[cm]					0.11	
fawf	[cm]	4.20	3.94-4.20	-	-	4.18	3.94-4.20
Dim of Aaprt X	[cm]		0.80	-	-	0.26	0.80
Dim of Aaprt Y	[cm]		0.20	-	-	0.20	0.20
TD	[usec]	0.70					
PRR	[Hz]	2592					
Pr at max Ipi	[Mpa]	1.53					
deq at max Ipi	[cm]					0.11	
FLx	[cm]		3.50	-	-		3.50
FLy	[cm]		2.54	-	-		2.54
Ipa,a at max MI	[W/cm2]	83.1					

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14. Display Accuracy and Precision

The output display indices are calculated with the accuracy described below. Also listed is the precision of the displays. A discussion of the accuracy statements follows their specification.

Thermal Index Display Accuracy and Precision

It is estimated that 90% of TI values will be +/– 45% of the displayed TI value or +/– 0.15% of the displayed value, whichever value is larger. This is approximately +/– 2 dB. The TI is displayed with a precision of 0.1. A displayed value of 0.0 for TI means that the calculated value is less than 0.05%.

Mechanical Index Display Accuracy and Precision

It is estimated that 90% of MI values will be within +/– 25% of the displayed value, or +/– 0.15 of the displayed MI value, whichever value is larger. This is approximately +/– 2 dB.
The MI is displayed with a precision of 0.1.

Discussion of Display Accuracy

The stated display accuracy values are determined relative to the MI and TI models, equations, and measurement methods specified in the "*Standard for Real-Time Display of Thermal and Mechanical Acoustic Output Indices on Diagnostic Ultrasound Equipment, Revision 2*" *(NEMA UD3)*. The TI and MI are relative indicators for the likelihood of tissue thermal rise and mechanical bioeffects, respectively. The accuracy statements listed here are not bound on the deviation of the displayed indices from actual temperature rise or pressure levels in the body.

The TI and MI values are determined from measurements in water and derated for tissue attenuation using an assumed homogenous tissue model with attenuation of 0.3 dB/cm/MHz and the sound propagation properties of water. Most tissues attenuate ultrasound at a greater rate. Fluids such as amniotic fluid attenuate less. In addition, the propagation of ultrasound is a nonlinear one in most cases, to different degrees in water and various tissues, with varying resultant effects on actual MI or TI values. The MI is a relative indicator for the likelihood of a mechanical bioeffect, such as cavitation, and its model assumes the presence of nucleation sites needed for cavitation. The TI models assume a blood perfusion length of 1 cm. Tissue perfusion lengths and rates are dependent on vasculature and blood flow and the thermal properties of the surrounding tissue, which vary greatly. The bone TI derivation assumes all ultrasound energy is absorbed by the impinged bone.

The accuracy estimates stated are based on the variability in acoustic output of ZONARE probes and systems, uncertainties in measurements made per the AIUM / NEMA standards, and uncertainties or approximations introduced in implementing the MI and TI algorithms in ZONARE software. They are not based on errors in the AIUM/NEMA MI or TI models, errors introduced by the measurement standards, differences between actual tissue paths and properties and those of water, or the effects of nonlinear propagation on the measured values.

Measurement Precision and Uncertainty of Acoustic Output Values

The measurement precision of quantities are listed in the table below. They are measured as part of determining MI or TI values. Quantities are listed as one standard deviation, in percentage.

Measurement Precision

Parameter	Description	Precision	Uncertainty
Pulse Intensity Integral (PII)	Energy density (mJoules/cm^2) in an ultrasonic pressure wave. Used in TI, Ispta.0, and Ispta.3 determination.	10.0%	+20% -26%
Peak Rarefactional Pressure (Pr)	Largest pressure amplitude (MPa) of the negative pressure half-cycles in an ultrasonic pressure wave. Used in MI determination.	5.0%	+12% -13%
Acoustic Power (W)	Time-average acoustic power in an ultrasonic beam. Influenced by pressure wave amplitude and length, as well as pulse repetition frequency. Used in TI determination.	5.0%	+/-10%
Center Frequency (Fc)	Center frequency (MHz) of an ultrasonic pressure wave. Used in TI and MI determination.	1.0%	+/- 2%

15. Guidance Documents

Medical Ultrasound Safety. American Institute of Ultrasound in Medical (AIUM), 1994.
NEMA UD 2, Acoustic Output Measurement Standard for Diagnostic Ultrasound Equipment, Revision 3. National Electrical Manufacturers Association, American Institute of Ultrasound in Medicine, 2004.

Acoustic Output Measurement and Labeling Standard for Diagnostic Ultrasound Equipment. *American Institute of Ultrasound in Medical* (AIUM), January 1998.

NEMA UD 3. Standard for Real-Time Display of Thermal and Mechanical Acoustic Output Indices on Diagnostic Ultrasound Equipment, Revision 2. National Electrical Manufacturers Association, American Institute of Ultrasound in Medicine, 2004.

16. Standards and Compliance

The z.one$_{pro}$ systems have been designed, manufactured, tested, and certified to comply with the following internationally recognized standards:

IEC 60601-1:1988 +A1: 1991 + A2:1995: Medical electrical equipment part 1: General requirements for safety.

IEC 60601-2-37:2001+A1: 2004 + A2:2005: Medical electrical equipment part -37: Particular requirements for the safety of ultrasonic medical diagnostic and monitoring equipment.

IEC 60601-1:2005: Medical electrical equipment part 1: General requirements for basic safety and essential performance. Including US deviations UL 60601-1:2003 R6.03 and Canada deviations CAN/CSA-22.2 No. 601.1-M90

IEC 60601-1-2: 2007: Medical electrical equipment part 1-2: General requirements for basic safety and essential performance. Collateral standard: Electromagnetic compatibility - Requirements and tests.

IEC 60601-2-37:2007: Medical electrical equipment part 2-37: Particular requirements for the basic safety and essential performance of ultrasonic medical diagnostic and monitoring equipment.

Guidance and manufacturer's declaration – electromagnetic emissions

The ZS3 System is intended for use in the electromagnetic environment specified below. The customer or the user of the [ME EQUIPMENT or ME SYSTEM] should assure that it is used in such an environment.

Emmissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group 1,	The ZS3 System uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	The ZS3 System is suitable for use in all establishments other than domestic, and may be used in domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes, provided the following warning is heeded: **Warning:** This equipment/system is intended for use by healthcare professionals only. This equipment/ system may cause radio interference or may disrupt the operation of nearby equipment. It may be necessary to take mitigation measures, such as re-orienting or relocating the [ME EQUIPMENT or
IEC 61000-3-2 harmonic emissions	Class A	
IEC 61000-3-3 voltage fluctuations/flicker emissions	Complies	

Guidance and manufacturer's declaration – electromagnetic immunity

The ZS3 system is intended for use in the electromagnetic environment specified below. The customer or the user of the [ME EQUIPMENT or ME SYSTEM] should assure that it is used in such an environment.

IMMUNITY test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	*± 2, 4, 6 kV contact* *± 2, 4, 8 kV air*	Floors should be wood, concrete, or ceramic tile. If floors are covered with a synthetic material, the relative humidity should be at least 30%.
Radiated Field Immunity IEC 61000-4-3	80MHz - 2.5GHz 3V/m, 80%@2Hz	*80 MHz - 2.5 GHz* *3 V/m 80% @ 1 kHz*	Portable and mobile RF communications equipment should be used no closer to any part of the ZS3 Diagnostic Ultrasound System , including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance d = (3.5 / E1)√P 80 MHz to 800 MHz d = (7 / E1)√P 800 MHz to 2.5 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Conducted Immunity: d = (3.5/V1)√P Field strength from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range. Interference may occur in the vicinity of equipment marked with the following symbol.
Conducted Immunity (AC Power) , (I/O Lines) IEC 61000-4-6	0.15MHz - 80 MHz 3Vrms @ 2Hz	0.15 – 80 MHz 3 Vrms 1 kHz AC Mains	

Guidance and manufacturer's declaration – electromagnetic immunity			
The ZS3 system is intended for use in the electromagnetic environment specified below. The customer or the user of the [ME EQUIPMENT or ME SYSTEM] should assure that it is used in such an environment.			
IMMUNITY test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment – guidance**
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV AC Mains ± 1kV I/O Lines 5/50 5 kHz	Main power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to earth	*±1 kV Line to Line* *±2 kV Line to Ground*	Main power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5 % U_T (>95 % dip in U_T) for 0,5 cycle 40 % U_T (60 % dip in U_T) for 5 cycles 70 % U_T (30 % dip in U_T) for 25 cycles <5 % U_T (>95 % dip in U_T) for 5 s	>95% dip in Ut .5 cycle 60% dip in Ut 5 cycles 30% dip in Ut 25 cycles >95% dip in Ut 5 Sec	If the user of the ZS3 Diagnostic Ultrasound System requires continued operation during power mains interruptions, it is recommended that the ZS3 Diagnostic Ultrasound System be powered from an uninterruptible power supply or a battery.
Magnetic Immunity *IEC/EN-61000-4-8*	3A/m, 50/60Hz	3A/m, 50/60Hz	Power frequency magnetic fields should be at levels characteristic of a typical commercial or hospital environment.

17. Product Labeling

The figures below depict the labeling required by various regulatory authorities and describe their location.

Contact ZONARE if any of these labels are missing or damaged beyond legibility. *The* ZONARE ultrasound labels herein are for reference only and are not shown to scale.

With the ZONARE Ultra ultrasound system, the L10-5 and L14-5sp transducers are classified as Type-CF (Cardiac Floating). All other transducer types are Type-BF (Body Floating). Earlier transducers labeled without these symbols are Type-BF. Type-CF is defined and regulated by International Medical Equipment Safety Standard IEC 60601 as having the most stringent of patient leakage current requirements. This classification is required for intra-operative applications that may contact the heart.

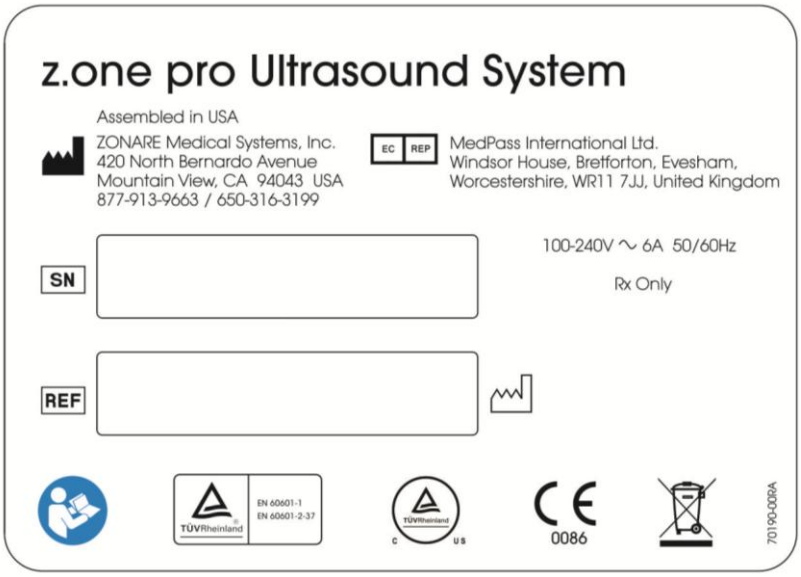

Figure 17-1. z.one*pro* Product Label, Back of Cart, Assembled in USA

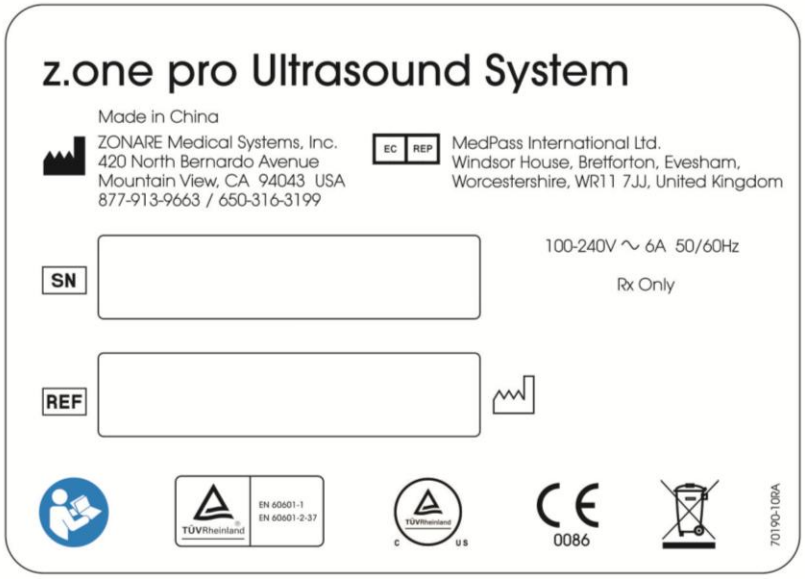

Figure 17-2. z.one*pro* Product Label, Back of Cart, Made in China

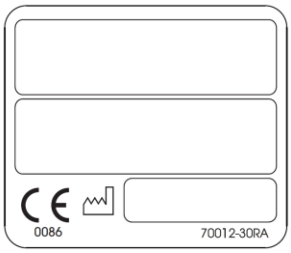

Figure 17-3. Part Number, Serial Number, Date of Manufacture Label for Transducers

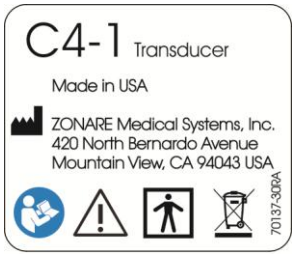

Figure 17-4. C4-1 Transducer, Type BF, label on Transducer

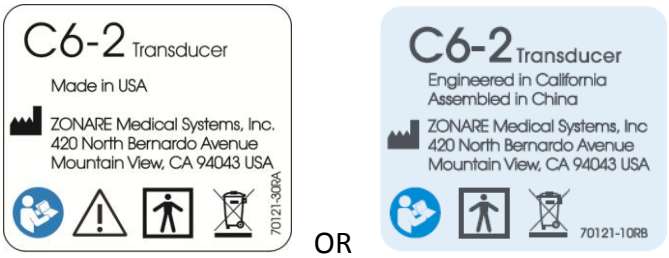

Figure 17-5. C6-2 Transducer, Type BF, label on Transducer

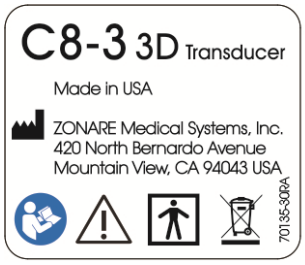

Figure 17-6. C8-3 3D Transducer, Type BF, label on Transducer

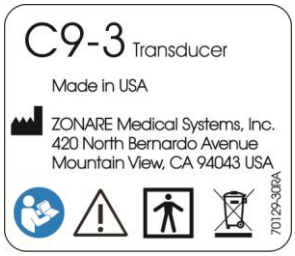

Figure 17-7. C9-3 Transducer, Type BF, label on Transducer

Figure 17-8. C9-3sp Transducer, Type BF, label on Transducer

Figure 17-9. C10-3 Transducer, Type BF, label on Transducer

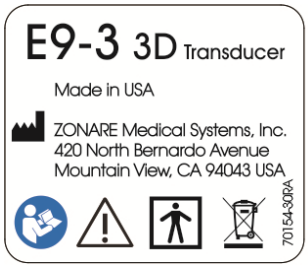

Figure 17-10. E9-3 3D Transducer, Type BF, label on Transducer

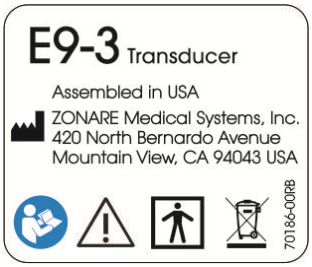

Figure 17-11. E9-3 Transducer, Type BF, label on Transducer

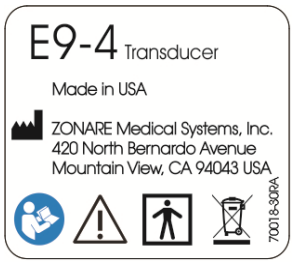

Figure 17-12. E9-4 Transducer, Type BF, label on Transducer

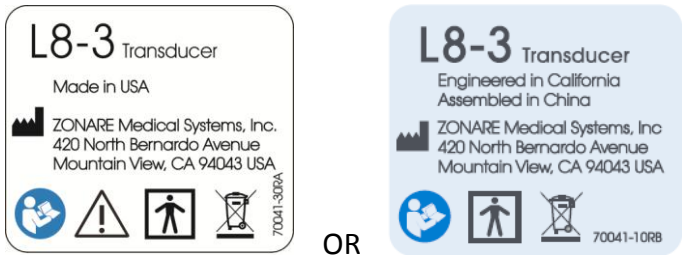

Figure 17-13. L8-3 Transducer, Type BF, label on Transducer

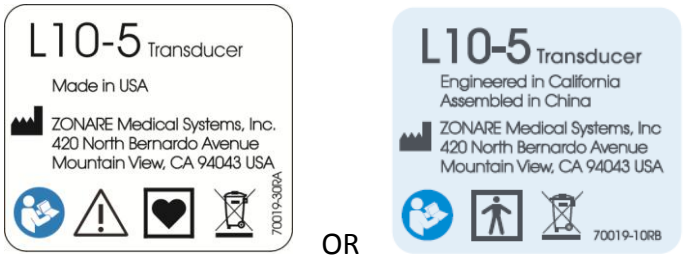

Figure 17-14. L10-5 Transducer, Type CF, label on Transducer

Figure 17-15. L14-5sp Transducer, Type CF, label on Transducer

Figure 17-16. L14-5w Transducer, Type BF, label on Transducer

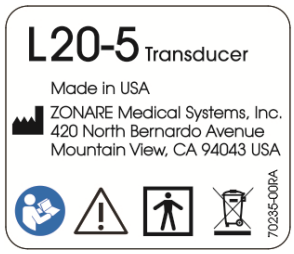

Figure 17-17. L20-5 Transducer, Type BF, label on Transducer

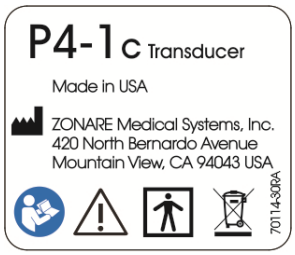

Figure 17-18. P4-1c Transducer, Type BF, label on Transducer

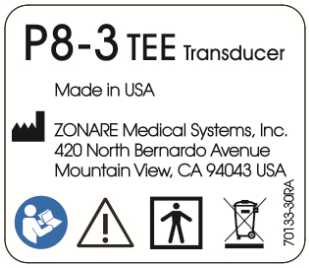

Figure 17-19. P8-3 TEE Transducer, Type BF, label on Transducer

18. Specifications

Type	Parameter	Value
Electrical	Power requirements	100–240V~, 50–60Hz, 6A max
	Power consumption (no peripherals) (max.)	180W (616 BTU/hr.)
	Power consumption (w/peripherals) (max.)	470W (1608 BTU/hr.)
Environmental (operating)	Cooling requirements	See power consumption above.
	Air temperature	0–35°C (32–95°F)
	Humidity	15–80%, noncondensing
	Pressure	700–1060 hPa
Environmental (storage and transportation)	Air temperature	-20–60°C (-4–140°F)
	Humidity	15–90%, noncondensing
	Pressure	500–1060 hPa
Physical (weight)	z.one*pro* system	65.3 kg (144 lb.)
	Power cord	0.6 kg (1.4 lb.)
	USB printer and bracket	3.4 kg (7.6 lb.)
	Battery and bracket	4.1 kg (9.1 lb.)
	Operating Weight Subtotal	*73.4 kg (162.1 lb.)*
	System shipping container	41.5 kg (91.6 lb.)
	Total Shipping Weight	114.9 kg (253.7 lb.)
Physical (dimensions)	Height, max (in operational use)	157.5 cm (62 in.)
	Height, min (in operational use)	128 cm (50.5 in.)
	Height, min (display lowered for transport)	104 cm (41 in.)
	Width	51 cm (20.1 in.)
	Depth	72 cm (28.2 in.)
I/O connectors	Ethernet (1 port)	RJ-45 – 10/100BaseT
	USB 2.0 (3 ports)	USB-Type A (VBUS 5.0V, 0.5A max)
	External Video (1 port)	HDMI 1280x1024
	Serial port	eSATAp

Type	Parameter	Value
Wireless Option	Manufacturer	B&B Electronics / Quatech
	Manufacturer PN:	ABDG-ET-DP501
	Wireless Technology	IEEE 802.11b/g, WiFi compliant
	Wired Interface	10/100 Ethernet (auto sense), RJ-45 Plug
	Frequency	DSSS, CCK, OFDM
	Modulation Technology	DSSS, CCK, OFDM
	Modulation Type	DBPSK, DQPSK, CCK, BPSK, QPSK, 16QAM, 64QAM
	Network Access Modes	Infrastructure, Ad Hoc
	Channels	USA/Canada: 11 channels Europe: 13 channels France: 4 channels Japan: 14 channels (13 channels for 802.11g)
	Wireless Data Rate	802.11b = 11, 5.5, 2, 1 Mbps 802.11g = 54, 48, 36, 24, 18, 12, 9, 6 Mbps
	MAC	CSMA/CA with ACK, RTS, CTS
	Network Protocols	TCP/IP, ARP, ICMP, DHCP, DHS, HTTP, UDAP Discovery, TFTP, UDP, PING
	Receive Sensitivity	54Mb/s = -69dBm 6 Mb/s = -86dBm 1Mb/s = -86dBm
	Wireless Security	Disabled, WEP 64 & 128bit, WPA (TKIP), WPA (AES), WPA2 (AES), 802.1x (EAP), Supports WPA & WPA2 Enterprise, EAP-TLS/MSCHAPV2, EAP-TTLS/MSCHAPv2, EAP-TTLS(MD5), EAP-PEAPv0/MSCHAPv2, LEAP - Zero host security footprint - Supports Certificate, delivery and management

Type	Parameter	Value
	Network Addressing Translation (NAT)	ABDG-BR-DP501, Client Bridge ABDG-ET-DP501, NAT 3 Router
	Antenna	ABDG-BR-DP501, Client Bridge ABDG-ET-DP501, NAT 3 Router
	Regulatory Compliance	Worldwide Certificate Support- FCC Part 15 Class B Sub C Modular Approval, IOC, CE, ETSI EN300 328, ETSI 60950-1, ROHS and WEEE Compliant